THE

AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN

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VOLUME XLVIII.

JULY-DECEMBER, 1903

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ORIGINAL COMMUNICATIONS.

DIAGNOSIS AND TREATMENT OF MEDIUM DEGREES OF PELVIC DEFORMITY.[1]

BY

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(With three illustrations.)

THE diagnosis of a contracted pelvis is seldom difficult and the greater the deformity the easier the diagnosis. If an examination is made at all carefuly during pregnancy the capacity of the bony canal is found to be smaller, and if during labor the engagement and progress of the head downwards is as a rule found to be disturbed. The only cases in which it is excusable to overlook a pelvic deformity are where the malformations are very slight and fortunately in them little harm is done by such an oversight.

But while it is not difficult to recognize a deformity of the pelvis it is a matter of very great difficulty to appreciate the exact degree and nature of the malformation. The reason for this is that the means at our disposal for measuring and estimating the pelvic capacity in the living subject are so defective. Neither by our hands nor by pelvimeters can we accurately measure the pelvis. There are three methods for measuring the pelvis manually. These are the taking the oblique conjugate, the introducing the whole

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[1]Read in introducing a discussion on the subject at a meeting of the Glasgow Obstetrical and Gynecological Society, Dec. 17, 1902.

hand into the vagina, and the method of Ramsbotham with the separated fingers. Of these the first two mentioned are the best. By neither of them, however, no matter how much care is taken, can a measurement exact to within a quarter of an inch be arrived at. This I say without the slightest fear of contradiction, for I have seen measurements most carefully made on the living subject wrong to one-quarter and one-half inch in unfortunate cases where the patients died and were examined post-mortem.

With pelvimeters results but little better are obtained. Even the most modern instruments of Skutsch or Falk, which I show you, cannot be trusted to give results much better than the hands.

But even although we could measure the pelvis accurately, and this is to me always a source of great comfort, we would be met by the second difficulty, the variability of the child's head as regards size and consistency. Now if it is difficult to measure correctly the pelvis it is much more difficult to measure the fetal head. After a great deal of practice in palpation a fairly good idea can be formed as to whether the child's head is large or small in cases where one can grasp the head through the abdominal wall. Beyond that, however, we cannot go and the céphalomètres devised by Perret or Budin, although I must admit to never having tried them, having always employed calipers, do not seem to promise to make it more simple. The difficulty in getting exactly the desired diameter of the head, the impossibility of measuring the biparietal diameter and the variability in the consistence of the abdominal wall and uterine wall need only be mentioned as the most important factors that disturb the calculation. Again, therefore, we must admit that as in the case of the pelvis an accurate measurement of the fetal head is not possible.

But now how far has this defectiveness in the methods of examination a real and practical effect on the treatment in cases of contracted pelvis? I venture to say that it has little effect in the management of contracted pelves when the deformity is only slight and when it is very marked, because forceps in the former, and Cesarean section, or if the child is dead, craniotomy in the latter, are the only alternatives. If, however, we have to deal with medium degrees of pelvic deformity, the class of cases more directly under consideration to-night, the shortcomings of our methods of examination must, I think, be admitted to handicap us very considerably in arriving at the most suitable treatment in particular cases.

But besides measuring the pelvis and fetal head there is another method of arriving at the most suitable treatment. If you think of

it, what really concerns us in practice is in particular cases the relative sizes of pelvis and fetal head. And what we should really ask ourselves, and what I always ask myself in cases of moderate pelvic deformity is how does the fetal head fit the maternal pelvis. Barbour put this very neatly when he said "The fetal head is the best pelvimeter."

The obstetricians who first tried to estimate the relative size of fetal head and maternal pelvis and let that influence his treatment was Müller. This he did more particularly in connection with Induction of Premature Labor, for he said labor should be induced when the fetal head can with a little difficulty be pushed through the pelvic brim.

Fig. 1. Müller's Method.

Since Müller's suggestion, an estimate of the relative size of head and pelvis is now made not only in connection with Induction of Labor but also in helping us to decide on such operations as Forceps, Versions and Symphysiotomy.

To carry out the manœuvre as recommended by Müller (Fig. 1) an assistant presses the head down into the pelvis while the operator with one or two fingers in the vagina feels how it engages. Now I have tried this method repeatedly for estimating relative sizes of head and pelvis and been often disappointed with the results obtained, for, while one can appreciate readily when the head can be pushed past the brim, if it sticks at the brim it is impossible to estimate from an internal examination alone what proportion of the surface of the head is beyond it.

But besides Müller's method others have been suggested and

Pinard tests the relative size of head and pelvis by purely external manipulations. As you can see from the illustration, Pinard's method (Fig. 2) is very simple. One can, as a rule, from it arrive at a pretty accurate estimate of the condition of the head and pelvis. Personally I have obtained the best results by employing the methods illustrated in Fig. 3. It is a bimanual method and requires no assistant to press down the head into the pelvis. With the right hand one takes the Pawlic grip of the head and presses the head into the pelvis, while with the two fingers of the left introduced into the vagina one feels how the head engages, and at the same time with the thumb one feels all along the brim and estimates the degree of overlapping. I have been able by this method to estimate with very great accuracy whether or not a head will pass

Fig. 2.   Pinard's Method.

the brim and the degree of traction, etc., that is likely to be required. One can appreciate also by such an examination the consistency of the head and one can move the head about at the brim with great ease and often with great advantage, for one can test the fore and back part separately. Many think and not a few have said to me that this estimating the relative size of head and pelvis is a matter of difficulty. Now, I do not think that it is so, and the more I resort to the method I have described of examining cases of medium deformity the more convinced do I become that it is not difficult and that it is often the only way to arrive at the proper treatment.

There are two objections to the proceeding. The one is that to carry it out really satisfactorily an anesthetic is neces-

sary, and the other is that in not a few cases the presentation is not a cranial but breech. As regards the first I quite agree that often it is desirable once at least, to anesthetise the patient. If, however, this has been done subsequent examinations can frequently be carried out without an anesthetic. But even admitting the necessity of an anesthetic, surely that is a small disadvantage compared to the valuable information obtained. In such cases I have never seen any patient suffer from the anesthetic nor premature labor set up either by the manipulation or by the the chloroform sickness.

The other objection that the method is not available in breech cases falls to the ground if one carries out the simple manœuvre of external version. I have repeatedly carried this out and always

Fig. 3.   Author's Method.

with very little difficulty if the pregnancy has not extended beyond the thirty-sixth week. At full time I must admit to having occasionally failed.

Now what I have said so far as regards the diagnosis of moderate degress of pelvic deformity, is applicable both in the later days or weeks of pregnancy and during labor. It must be remembered, however, that in a certain number of cases, even if one sees them during pregnancy, a conclusion as regards treatment cannot be come to until labor has progressed some little way. I think I can make this much clearer by giving an example. A poorly nourished rachitic dwarf was recently admitted to the Maternity Hos-

pital in labor.   As the case was one of special interest I showed her
to the students who were going round the wards with me.   Her
obstetric history was very interesting. Although she had a C.V. of
only 3½ inches, all her children, with the exception of her first,
were born without any operative interference.   She had been in
hospital under my care at her last confinement.   In her first labor,
which was the only one in which the child had not survived, labor
was induced about the thirty-fifth week on account of the pelvic de-
formity.   When one examined the patient it was found that every-
thing was in favor of, if not a spontaneous labor, at least a labor
that would be terminated by only a little traction with the forceps;
for the presentation was an anterior parietal one, the head was not
large nor unduly ossified, and the occiput was towards the roomy
side of the pelvis.   I told the students this and was able to inform
them next day of the correctness of the prognosis.   It was a mis-
take to have brought on labor in this case at the first confinement,
although a mistake that many of us might commit, for a first labor
must often be considered a trial or test labor and so in a primipara
unless the indications point clearly to a probability of great difficul-
ty I do not as a rule interfere until the second stage of labor has
been in progress some little time.

In conclusion I would make the following statement as regards
diagnosis.   (1.) A careful measurement of the pelvis both by the
hand and by a pelvimeter should be made.   (2.) An estimate of
the size of the child's head should be attempted both by palpation
and callipers or the cephalomètre.   (3.) The relative size of head
and pelvis should be estimated and on that should one's treatment
be chiefly based.   (4.) In certain cases where the difference in
size of head and pelvis is only slight a decision as regards treat-
ment should only be come to after watching the progress of la-
bor, especially is this the case in primiparæ.

Treatment.—In the time that is left me to devote to treatment
you can readily understand that it is not possible to discuss the
subject exhaustively all I can do is to touch upon some of the
more important points.   Now by medium degrees of pelvic de-
formity I understand as I have already stated, those cases, where
the C. V. is round about 3 inches, and where there are several
alternative treatments.   The alternatives I take to be forceps, ver-
sion, induction of premature labor, symphysiotomy, and occasion-
ally Cesarean section and craniotomy.

Before discussing briefly each of these operations I desire to
say a word or two about some of the factors which should guide

one in coming to a decision in particular cases. Amongst others the following may be mentioned : (*a*) Whether one sees the case during pregnancy or only after labor has commenced and if labor has commenced whether it is at term or not. (*b*) The general condition of the mother. (*c*) The presence or absence of any complications. On the part of the child (*a*) the nature of the presentation and if abnormal the possibility of rectifying it. (*b*) The condition of the fetal heart. (*c*) The presence or absence of any complication such as malformations, prolapse of cord. (*d*) A plural pregnancy.

It must be remembered also that there are an appreciable number of cases of pelvic deformity in which spontaneous birth of the child takes place. The degree of deformity below which spontaneous birth is impossible is difficult to fix. I have, however, seen on two occasions a rachitic dwarf with a C.V. of 3½ inches deliver herself without assistance and on the last occasion the child weighed 7½ pounds. Below that figure I have never seen a woman deliver herself of a normal full-time live child. The following factors influence a spontaneous birth of a full-time child in flat rachitic pelvis : (*a*) The presentation—an anterior parietal presentation being very much more favorable than a posterior. (*b*) The consistency of the head. (*c*) The occiput being to the more roomy side of the pelvis, for very commonly one side is more spacious than the other.

Forceps.—During the years 1891 to 1901 in the Maternity Hospital there were 98 cases of contracted pelvis in which delivery was affected with forceps. There was a maternal mortality of 1 per cent and a morbidity of 8 per cent. The conjugate vera in these cases ranged from 2¾ inches upwards. No woman was delivered by forceps with a vera of less than 2¾ inches, and indeed that only occurred on two occasions and the children were dead. As regards the children one finds that with a vera of 3 inches the mortality was 50 per cent, while with a vera of 3¼ inches it was only 13 per cent.

I would therefore make the following statements as regards flat rachitic pelvis and delivery with forceps : (1.) Forceps of the Simpson or Milne Murray patterns are the best. I have tried several other forms. Neville's forceps I employed for three years and it has been my experience on several occasions to deliver a child with Milne Murray's forceps after trying and failing with Neville's. (2.) Walcher's position is frequently an advantage. I have more than once failed to deliver a patient in the ordinary

position and succeeded when I placed her in Walcher's position. (3.) I have never succeeded in delivering an uninjured child if there was an appreciable overlapping of the head at the synphysis. (4.) An anterior parietal presentation is much more favorable than a posterior.   (5.) The lowest limit for forceps should be a vera of 3¼ inches, as below that figure the fetal mortality is anything from 50 per cent to 70 per cent, and there is distinct danger to the mother.   Of course there are a few exceptional cases where it has been possible to get the child through safely with a vera of only 2¾ inches, but such cases are extremely rare and should not be considered.   (6.) Forceps should not be applied if the fetal head after having had time to engage and mould is still movable at the brim.

Version—As regards version I have only a word or two to say. During the ten years mentioned there were 42 cases of version for contracted pelvis, the maternal mortality was 2 per cent and the morbidity 19 per cent.   You remember I told you a moment or two ago that with forceps there was a mortality of 1 per cent and a morbidity of 8 per cent.   As regards the children I find that once with a diagonal conjugate of 3½ inches a child of 5½ pounds was delivered uninjured, but only on one occasion.   With a vera of 3 inches the fetal mortality was 65 per cent and with a vera of 3¼ inches 28 per cent, so that again the results are very much worse with version than with forceps.

My conclusion as regards version is that it is a treatment more dangerous to the mother and with an infinitely higher fetal mortality than forceps.

Symphysiotomy.—Next to forceps the two most important operations to consider for the particular variety of pelvic deformity we are discussing are symphysiotomy and induction of premature labor.   As regards symphysiotomy I cannot speak with much authority as I have performed the operation on only four occasions. The results have been satisfactory, however.   All the mothers have recovered without any complications during the puerperium. The conjugate vera in the different cases was estimated at 3 inches, 2¾ inches, 2⅝ inches.   The greatest separation of the bones at the symphysis was 2½ inches.   All the children were extracted with forceps, the patients being in the Walcher position.   Regarding the children, all were born alive: one child, however, had a spoon-shaped indentation of its skull (which I removed by compression) and evulsion of its eyeball of the same side.   I am quite convinced symphysiotomy is a most valuable operation if the cases

are carefully chosen. The view of Sinclair that symphysiotomy should be banished from our list of obstetric operations is quite untenable. The cases require to be very judiciously chosen, however. If the overlapping of the head at the symphysis is anything but the slightest the operation is contraindicated. With a vera below 3 inches the operation becomes serious, and certainly 2¾ inches is the lowest limit. With a vera of 3 inches, however, good results will almost always be obtained unless the head is unusually large. With a vera of 3¼ inches I would always try forceps first and only perform symphysiotomy if with moderate traction I failed to extract the child. I think the operation should not be performed in persistent breech presentations and if the fetal heart is beating unsatisfactorily.

Induction of Premature Labor.—Induction of premature labor, the last treatment I shall refer to, would be the ideal operation if one saw the women early enough in pregnancy and if one could always tell exactly how far pregnancy had advanced. Unfortunately that is not possible. The most admirable paper by Black on this subject, read before this society two winters ago, showed only too clearly how unsatisfactory are the results obtained in hospital practice from the induction of premature labor. The infantile mortality you remember he told us was about 50 per cent. In the discussion on Black's paper Edgar supplied two interesting tables made up from the cases of the former. They showed very clearly that the fetal mortality was 78 per cent, with a vera below 3 inches : and 58 per cent with a vera above 3 inches ; also that the best results were obtained when labor was induced in the 35th week. These figures entirely agree with my own experience, consequently in a case of contracted pelvis I do not consider induction of premature labor if the vera is below 3 inches. Also as it is often not possible to arrive at the age of the fetus in utero I induce when the head will only enter the pelvis with difficulty. If I can be sure of the age I consider it undesirable to induce before the 34th week.

Cesarean section and craniotomy need not I think be considered to-night. If the child is dead or the fetal heart is feeble craniotomy should be performed, there is no object in dragging a child through a contracted pelvis if it cannot survive. If the woman has been in labor long before coming under one's care, and if there is the probability of her having been already infected, then I think even although the child is alive craniotomy is the only alternative if one fails to deliver with forceps. Cesarean section is still an

operation with a mortality in our hands at the Maternity Hospital of about 15 per cent. If the cases are seen before labor and can be properly prepared we have found the mortality very much lower than that, however. But in operating upon cases in labor, and especially if the cases have been examined by those not fully appreciating the importance of surgical cleanliness, it is an operation of very considerable danger to the mother. I remember very distinctly seeing with my colleague, Dr. Jardine, a case in which we discussed the advisability of doing a Cesarean section. It was that of a woman who had been in labor for some time and who had been examined once or twice vaginally before admission to hospital. We thought that the risk of her going septic was too great, and so, although the child was alive, craniotomy was decided upon. The patient became violently septic on the second day of the puerperium. I see it is stated sometimes that it is a crime to perforate a living child. Such a statement is absurd, and is made by those who are either anxious to perform the Cesarean section on every possible occasion or have little experience of the treatment of contracted pelvis. Occasionally it is quite sound treatment to perforate a living child.

28 BERKELEY TERRACE.

ACCOUCHEMENT FORCE.[1]

MANUAL DILATATION.

BAG DILATATION.

BY

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WE have chosen to take up this evening a matter which, in one of its aspects, is not a little curious and behind the times. It concerns major surgery if that surgery be called major which presents alarming crises. Yet this operative work is allotted to the man whose incomplete surgical training leads him to avoid operations entailing grave risks—namely, the family practitioner. More than this, a large proportion of the work is in the hands of the unkempt and untutored midwife, and all of it lies still in her

[1] Read before the Chicago Medical Society and the Chicago Gynecological Society, March 18, 1903.

shadow, as work that the best men will not take, as work not a true specialty, and at a scale of fees based on her attainments.

Naturally, therefore, the man who would not wish to have the carotid of his patient tied in any but the most favorable hospital surroundings has it in his mind that it is right and proper to face a far more alarming hemorrhage, unaided, in a dusky apartment, on his knees between the bed and the wall.

If then, a certain number of such cases call for technical ability of no mean order, let us save lives in the future by recognizing this class as in the domain of major surgery, and, forearmed against dangers that may always be foreknown, place the patients where they can be properly cared for. The day cometh, and now is, when grave operative delivery belongs in the operating room as truly as does an appendicectomy or ruptured tubal gestation.

The purpose of our discussion is to map out the field for each of the methods of forcible dilatation and extraction. In view of their widened application, and the new interest recently developed, it is desirable that we try to obtain a true perspective or proportion. It may be added that the scope of the term forced delivery should not be restricted to swift processes, but must be extended to include many problems of induction of labor, and very deliberate delivery.

DILATATION OF THE CERVIX—THE BAG.

Carl Braun, in 1851, distended the vagina with an elastic bag; then Barnes devised small and partially elastic fiddle-shaped dilators for the cervix; Maurrer (1887) went frankly into the uterus with a large bag and pulled on it to dilate the cervix; Champetier de Ribes (1888) passed within the cervix a conical balloon which was inelastic; Voorhees of New York shortened and fortified these inelastic rubber cones in order that they might be pulled upon strongly. Muller (1896) and De Lee (1902) attach traction devices; Kurrer (1903) employs steady water pressure from a fountain syringe hung high; while the writer prefers intermittent hydraulic pressure to turn on and off the pains at will, or an inelastic bag within the cervix, together with an elastic bag in the vagina that shall efface the cervix.

The Braun colpeurytner, as well as other elastic balloons, when placed in the vagina, do not control hemorrhage or often induce contractions. Placed partly within the internal os, the uterine contractions extrude the water from that portion inside the womb into that portion in the vagina, as sand runs through an hour glass.

Barnes' bags, which we loyally pictured and faithfuly carried while
they hardened to leather, were anatomic errors. They antedated
the frozen sections which taught us actual obstetric anatomy. The
conical balloon of Champetier was more nearly right, but it cost
six dollars, it dried and cracked, and it broke apart on slight trac-
tion, while the undue elongation of the cone shoved the presenting
part up out of the brim and permitted the cord to prolapse. Coe's
hour glass addition to Voorhees' is useless. The simple, strong,
short cone of Voorhees, inelastic, thin enough to slip in, when
rolled, wherever the finger tip will pass, with no stop-cock to get
out of order, is durable, efficient and inexpensive. The set of
four costs $1.50, but only the second and largest are necessary.

Technique.—One gets ready brushes, gauze sponges, green soap,
scissors or razor, a large Sims' speculum, a double tenaculum, a
douche bag with a sixfoot tube, a pipette or a glass catheter with
an opening at its end, thread, and the largest available Voorhees
bag. The connections made and tied, the whole boiled, the foun-
tain syringe filled with bichloride solution, the vulva clipped or
shaved and scrubbed, the patient is laid on the back or side. Anes-
thesia is required only in the hysterical or hyperesthetic. If the
cervix is close to the hymen and the internal os within easy reach,
the rolled bag, its further edge seized in the tips of any slender,
long clamp forceps, may be passed along the finger into the uterus,
with caution that no contacts with the labia occur on the way in.
To insure this a piece of gauze with a small hole in it covers
the vulva. But in most instances it is better to see the cervix
through a speculum, to seize its anterior lip with the hook, and so
pass the roll into the uterus. The tips of the forceps pass gently
on, in order not to injure the membranes, into the lower uterine
segment above the promontory, till the bag has disappeared. Then
the fountain head is raised, the forceps released and withdrawn,
while the finger studies the distension. When the bag is tense, the
tube of it is clamped by a forceps. For rapid dilation, the tube is
pulled upon steadily, or with intermissions. But if the normal
process is to be simulated or expedited, the douche bag is raised
and lowered, and contractions produced, or lessened, as desired.
This control may be left to the nurse, to administer pains as de-
sired, with the caution that the douche bag be never lowered so
much that all pressure is off the inside bag.

The disadvantages of dilatation by these methods are the same
that apply to all artificial methods of opening the cervix. Although
the lips of the cervix are opened and separated thereby, thinning,

retraction and effacement do not occur. At least the normal disappearance of the cervix does not occur unless the uterus is induced to take an active part. Lack of gentleness, or of care to follow along the uterine wall, may rupture the membranes. One must, in marginal placenta previa, keep away from that side on which the after-birth lies. Moreover, when the bag is pulled upon the cervix is dragged down, not drawn up, as in normal labor. It often shows at the vulva. But the advantages of the balloon call for frequent use. The procedure more nearly resembles the normal process than any other method of artificial dilatation. It inflicts less injury than any other. The outfit is light, inexpensive and compact, and its use is within the range of the general practitioner. Its field is not small, for although its action is usually less rapid than that of branched dilators or the hand, and although the most rigid conditions may not yield to it, yet *it has no rival at all for induction of labor, for inertia in the first stage, and as a tampon-dilator in placenta previa with a thick, unyielding os.*

I am experimenting on a combination of an inelastic cone within the cervix, and an elastic balloon in the vagina, in order that the outward pressure against the lateral pelvic walls may efface the cervix. I am also trying a bag on the principle of the rubber tobacco pouch.

DILATATION OF THE CERVIX—THE HAND.

There is nothing so intelligent as the finger, nothing less dreaded, nothing so handy. It will always be our main resource, and this whether it is asked to initiate labor by stripping the membranes, or to stretch fully the cervix. Put the rubber cover on it and it is sterile. Give the hand time and few cases can resist its action.

The methods of dilatation of the cervix by hand, though doubtless very old, are usually labelled by the names of the men who fully described them. Bonnaire and Edgar use both hands together; Harris but one hand. A finger tip is coaxed into the cervix, then two, and the thick rubber band is kneaded and drawn in various directions, as one would stretch the sphincter ani. Edgar draws apart two forefingers, back to back. Then others are slipped in. Of course, the edges draw straight between the two opposite points of traction, and the gap thus opened should not be pictured as he pictures it, as a circle. Harris slips a forefinger into the ring, then the tip of the thumb is insinuated, then a third digit presses in as the first two wedge apart, until all the fingers enter,

and then the fist can pass.   The fingers, crooked into a hollow ball,
are pressed powerfully outward.   With either method, a half hour
will open up all but the toughest circle.   The fist must pass very
freely for the head to follow.

The disadvantages of manual dilatation are :

First. Infection, overcome by the rubber glove.

Second. Laceration, overcome by patient gentleness.

Third. The swollen, contused and unthinned result, a draw-
back common to all artificial methods.

Fourth. The difficulty in reaching or entering the internal os
when the cervix stands far back in the pelvis and is not to be
coaxed within touch of the finger tip.   This trouble is easily over-
come by the single tenaculum gently drawing downward on the
anterior lip.

And lastly, there are occasional rings so rigid that no finger can
pass them.   For them the knife or metal dilator are demanded.
These, in hospital work, we fearlessly cut wide, then deliver, and
repair.

In the choice of the method of extraction, the American will
often prefer the forceps where the German would bring down the
foot.   Whenever speed is the main consideration, we are obliged
to turn.   Whenever, in placenta previa, the head cannot be made
to blockade the cervix, one must turn.   Thus, version is our chief
reliance.   But its indiscriminate employment must be limited be-
cause of the danger of shock, sepsis, rupture.   One may not unad-
visedly add shock to shock, in blood-loss or eclampsia.   If the pel-
vis is roomy, if the woman is a multipara, if the bleeding is checked
(in the first class) and the vessels filled with saline, if chloral and
morphia in leash have arrested the convulsions in the second class,
one may often take the quieter and slower method with great ad-
vantage.   Dr. De Lee has recently presented this matter with clear-
ness and force.   The personal equation enters into the decision,
and a man's skill in one method or the other will often determine
his choice.

To sum up then, though each case must be studied for itself, the
order of choice of method where delivery has to be forced, is, to
my thinking, as follows :

For induction in the latter months, and for inertia during labor,
(where other causes are eliminated, such as exhaustion, over-dis-
tension and malposition of passage or passenger) the bag comes
first, then the hand, and the forceps finishes their work.   For pla-
centa previa, the balloon for the narrow cervix that bleeds, when

the head will not plug it, and for the bad cases version, since the thigh is the surest tampon.

For brisk hemorrhage of detachment of a normally located placenta, the greatest speed, to wit, manual or metal dilatation.

For the rigid cervix of the early months, for the unyielding girdle of the elderly primipara, for the grisly hardness of eclampsia, the powerful Bossi instrument is a great boon, and none of its imitators approach it.

I present nothing new. I ask only for a careful study of various methods lest the European freshet of enthusiasm for the branched dilator break bounds and leave us stranded and a little ashamed as the wave of symphyseotomy did.

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REFERENCES.

BONNAIRE: Tarnier et Budin, Traité d'Accouchements, 1901, iv., 144.

BOSSE: Ueber Colpeuryse and Metreuryse. Centralbl. f. Gyn., 1900, 784. 12 cases bag dilatation.

CHAMPETIER DE RIBES: Annal de Gyn., 1888, xxx., 401 ; de l'Accouchement provoqué.

BOSSI'S Dilator: Literature fully given in Zangemeister, Centralbl. f. Gyn., 1903, p. 97-98.

DE LEE: Amer. Gynecology, Sept., 1902, 30 cases placenta previa.

DECKART (Breslau): Die Hystereuryse, Münch. Med. Wochensch., 1900, 17 & 18; 42 cases bag dilatation.

EDGAR: Methods and Aids in Obst. Teaching. N. Y. Med. Jour., 1896, Nov. and Dec.

HARRIS: American Jour. Obst., 1894, 37.

KURRER, A.: Centralbl. f. Gyn., 1903, 197.

MEYER: Bibl. F. Lägevid, 1900. Dilatation with bags.

MULLER, ARTHUR: Monatschr. f. Geb. u. Gyn. Bd. iv., Hft. 5, 415; Zur Ballon Dilatation d. Cervix, also Centr. f. Gyn., 1899, 1283.

RABESKA (of Prag.) Arch. f. Gyn. Bd. lxi., heft 1 ; 45 cases induction with bag.

ABDOMINAL AND VAGINAL CESAREAN SECTION AS MEANS
OF ACCOMPLISHING ACCOUCHEMENT FORCE.

BY

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ABDOMINAL and vaginal Cesarean section are rarely necessary
as means of rapid delivery. The technique of the former opera-
tion is so well known that no description is here necessary. A few
words may be said concerning the other procedure, which as yet
has been employed by very few operators.

It was first performed by Acconci in 1895, but it is mainly due
to Dührssen's advocacy in 1896 that it has begun to attract notice.
Within the last few months Brumm has strongly recommended
it.

Technique of the Operation.—A circular incision is made
through the mucosa covering the vaginal portion of the cervix,
close to the fornix and is extended into each lateral fornix for half
an inch. The mucosal flap is then stripped upward with the blad-
der, the cervix being pulled downwards with volsella. The blad-
der is then held with a retractor and the cervix is divided in the
middle line anteriorly and posteriorly, if the case be at or near
full term. If it be premature the posterior lip of the cervix need
not be divided. The cervical incision is then continued into the
lower uterine segment anteriorly as far as necessary, care being
taken not to enter the peritoneal cavity. In this way an opening
in the uterus may be obtained 8 to 12 c.m. in length, which allows
the passage of the fetus. Bleeding is controlled by forceps. If
it is thought advisable, the uterine vessels may easily be secured.
Through the incision the fetus is extracted by version or forceps.
The placenta and membranes are then removed and a gauze tam-
pon placed in the uterus. The incisions are then closed with cat-
gut.

I shall next consider abdominal and vaginal Cesarean section in
relation to the various conditions, in which *accouchement forcé*
is most commonly employed.

(a) *In Eclampsia.*—Since 1889, when Halbertsma proposed ab-
dominal Cesarean section as a mode of treatment, it has been car-

ried out in a considerable number of cases. Kettlitz in 1897 collected 27 cases with a mortality of 47.3 per cent.; Hillmann. in 1900, 40 cases with a mortality of 52.5 per cent. These percentages are certainly higher than the average in large numbers of cases of eclampsia treated by ordinary means. There seems indeed no justification for the adoption of the procedure as a routine method of treatment. In rare cases of eclampsia it may be indicated, viz., in contractions of the birth canal by pathological changes in the soft or hard parts which make delivery through it impossible.

When also an eclamptic dies. the fetus being alive *in utero,* it is the duty of a physician who may be present at the time of death to advise immediate post mortem Cesarean section. Bauer has recently reported eight such cases in which four infants were saved.

Vaginal Cesarean section is to be recommended in cases of eclampsia in pregnancy or in early labor in which the cervix is rigid and difficult to dilate. As a means of delivering a woman rapidly it is, in such a condition, a safer and more scientific procedure than Dührssen's incisions or forcible stretching with metal dilators, for it produces a clean incision in the mesial plane of the cervix and lower uterine segment. hemorrhage from which may be readily controlled.

(b) *In Placenta Previa.*—Within the last few years abdominal Cesarean section has been carried out in several cases of placenta previa. It was first suggested by Lawson Tait. Zinke has collected six cases of the conservative operation and two of Porro's operation in which five mothers and six infants lived. The procedure has been widely criticized and very rightly. If women were always in hospital where the operation could be carried out promptly by an expert operator immediately after the diagnosis was made. the results might be more satisfactory both to mother and infant than those obtained by all other methods of treating placenta previa. but under the conditions which exist in ordinary private practice, the results would undoubtedly be worse. Abdominal Cesarean section must indeed, be considered as rarely indicated in placenta previa, practically. only when some condition exists which renders the ordinary methods extremely hazardous or impossible. I have reported before this Society the case of a young girl of fourteen, in which excessive hemorrhage associated with a small vagina and a contracted pelvis necessitated the operation.

Bumm has recently successfully performed vaginal Cesarean section in placenta previa and believes that this operation will become important in certain cases of this condition. I think that his suggestion is valuable and that performed by an expert operator, it will be of great value in those cases, fortunately rare, in which the cervix dilates with great difficulty.

(c) *In Accidental Hemorrhage or Ablatio Placenta.*—Though several authorities have suggested the abdominal Cesarean section in certain cases of premature detachment of the normally situated placenta, it has been rarely employed. It seems to me that the operation should only enter into consideration when it is impossible to carry out other procedures by the vaginal route.

Vaginal Cesarean section is indicated in cases of accidental hemorrhage where the patient's condition is critical and where the cervix cannot be rapidly dilated by the ordinary methods, providing a competent operator is at hand.

(d) In affections of the heart, lungs, kidneys, etc., where the mother is in danger, and rapid delivery indicated.

In these various conditions vaginal section is indicated where the cervix does not admit of easy dilatation. The abdominal operation should not be employed save where there is no possibility of satisfactorily performing vaginal section.

(e) In cases in which the mother is *in articulo mortis.*

If a physician be present at the death of a pregnant woman carrying a viable fetus, it should be his duty to advise immediate Cesarean section in the hope of saving the latter. Bauer has collected reports of fifteen such operations. In three only was the fetus dead, in two it was alive but soon died, while in ten it lived.

The abdominal operation is by far the simplest and quickest in such cases, for it can be performed merely with the knife and without assistance. The vaginal operation has also been recommended, but it would probably occupy a longer period than the other and assistance would be needed.

CERVICAL INCISIONS IN LABOR.*

BY

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THE use of cervical incisions is by no means a new obstetric procedure; for a century or more, cutting operations upon unyielding cervices have been fully recognized. Coutouly[1] (1808) recommended the operation; Morgagni[1] advised it; Simpson[2] (1847) practiced incisions in carcinoma cervicis; Bedford[3] (1843-1847) reported two cases of cicatricial closure of the os externum in which he cut the bulging cervix transversely, and then bisected the posterior lip in each instance. The women recovered without untoward symptoms. Bedford called his operation vaginal Cesarean section or hysterotomy; the advisability of calling such an operation by the former name was questioned by Baudelocque years before. Carl Braun,[1] perhaps was the first to outline indications for cervical incisions, and to designate the anatomic conditions which rendered the operation permissible—he demanded that there be at least effacement of the supra-vaginal portion of the cervix; the danger of tearing beyond the incisions was pointed out by him if the effacement was not complete. Skutsch[4] (1887) definitely outlined the use of incisions, and practiced them when necessary. He recommended six (6) incisions, the advisability of which Dührssen[5] questioned for he claimed two or three were sufficient, but in one instance he was forced to make seven. As each incision was made, the vagina being opened by specula, a long silk suture was inserted so as to coaptate the cervico-vaginal mucous membranes, the ends were left long. These sutures arrested hemorrhage, and then post partum aided the insertion of permanent sutures. When the repair was completed the silk was removed. Dührssen[6] (1890) perfected the technique and widened very much the indications. Perhaps in certain directions the scope of the operation as laid down by him is too broad, but it furnishes a guide for those who recognize the value of the so-called Dührssen Incisions.

Anatomic Considerations.—To clearly understand when it is permissible to make the cervical incisions certain physiologic-anatomic data relating to dilatation of the os must be reviewed.

*Read before the Chicago Gynecological Society, March 18, 1903.

It must be clearly recognized that there are marked characteristic differences between the dilatation of primiparous and multiparous ora externa. In first labors the characteristic dilatation progresses from above downward, *i.e.*, the internal os first begins to open; gradually the area about the internal os forms a continuous surface with the uterine wall above; in succession each succeeding horizontal plane of the cervix is unfolded until finally the external os is reached. Then, only, does the material dilatation of the external os begin. When this stage of labor is reached we say the cervix is effaced. Any moment thereafter the incisions may be undertaken—the later the cutting is delayed, the more certain we may be that we may secure a maximum opening without an extension of the cuts by tearing. Effacement frequently occurs partially in the days following "lightening," and generally is well developed in the early part of labor. In multiparæ during the last days of pregnancy there may be some material dilatation of the external os, while the internal os is completely closed. As labor advances dilatation of the entire cervical canal occurs, *i.e.*, it occurs pari passu with effacement. In fact not infrequently full dilatation may occur with slight effacement, especially where the head fails to enter the brim. It should always be borne in mind that the period when cervical incisions may be safely done in primiparæ is clearly defined in nearly all instances; in multiparæ, on the other hand, this time is uncertain, and in fact, it may be almost stated dogmatically that the incisions are only indicated in multiparæ where the indication for them lies in rigidity, etc., of the external os.

Indications.—However perfectly the condition of the cervix warranting incisions may be fulfilled, however skillful the obstetrician may be, there are always inherent dangers in making use of this Dührssen operation, so it never should be lightly undertaken. While many of the indications to be given for the incisions apply with equal force to manual dilatation and hystereurysis, and the new Bossi method, I would express my opinion that in many of the indications the three methods do not come into direct concurrence with one another, but that they are complemental to each other. For instance, the time element. If haste be not essential the slow dilatation by the rubber bags should be elected; the hystereurynter prepares the cervix for delivery, softens it, and if rigidity be not too marked, secures dilatation. Per contra, a woman who is in danger of dissolution, threatened with rupture of the uterus, etc., should not be subjected to bag therapy, but

should have incisions made. Manual dilatation, broadly stated has a field midway between hystereurysis on the one hand and cervical incisions on the other, as regards rapidity of delivery and danger to the maternal organism. I would make an arbitrary classification of *essential* and *contributory* indications. While this division is subject to criticism I feel it will prove satisfactory. Under the former heading I would place all those inherent conditions of the cervix which prevent proper dilatation; under the latter those complications of labor which render it expedient to perform the operation in the course of forced deliveries.

A. ESSENTIAL INDICATIONS. VARIOUS FORMS OF CERVICAL RIGIDITY.

1. Conglutinatio Orificii Externi.[7] This condition is especially apt to occur in primiparæ of advanced years; the true cause is still a matter of some speculation, but generally may be held to be a continuation of the "pin-hole os" of the nonpregnant with a catarrh which renders the immediate circumference of the os unnaturally tense.

2. Atresia of Pregnancy.[7] In close relation to the former, but of far greater import; there may be an actual growth or adhesion of the cervical lips to one another after impregnation has occurred. Rigidity of the cervix is an almost constant concomitant; as it occurs most frequently in multiparæ, labor should be allowed to progress until cervical effacement is well developed before incisions are practiced.

3. Rigidity without Closure of Os.[7] The factors which produce this class are many; in certain cases there is a simple structural change consequent to a chronic inflammation—a connective tissue hyperplasia, if you please; this appears perhaps more frequently in elderly primiparæ. Again, as a result of too active treatment of the cervix with irritating drugs, escharotics, etc., the cervix becomes indurated. Chronic ulceration of the cervical lips may produce it. The deep lacerations of former labors, with their train of inflammatory processes, may give a strong demand for incisions. If such deep lacerations have been repaired by Emmet's operation the necessary sacrifice of tissue may give insufficient dilatation in the later labor. Such trachelorrhaphies often cause the worst forms of lacerations in subsequent labors; timely incisions may prevent them. The same may also be said of amputation of the cervix. Carcinoma of the cervix will be an indication for cer-

vical incisions only when the disease is distinctly localized in the portio vaginalis; if the cancer has invaded the higher structures of the uterus Dührssen's vaginal Cesarean will come into consideration, or perhaps the abdominal operation may be elected. The timely use of hystereurysis, when possible, will be of great value in all these indications; especially is this preliminary treatment advisable in multiparæ.

4. Ventro-Fixation. If certain gynecologists will not admit the dangers of this operation in women who may become pregnant obstetricians will attest to the severe complications which may arise in labor from the adhesions of the uterus to the abdominal wall. The vicious relation of the uterine axis to the brim may seriously interfere with dilatation, and incisions may be added to consummate full dilatation; other operative procedures may come into consideration in individual cases.

B.   CONTRIBUTORY INDICATIONS.   COMPLICATIONS OF LABOR.

1. Premature Rupture of Membranes. Dührssen would cut the cervix when this occurs in order to gain space to introduce his hand in performing prophylactic version in flat pelves. Also in a case of prolapsed cord he would open up the os in order to turn. In elderly primiparæ we may find an indication when the waters have prematurely drained away, and especially if there be anomalies of mechanism present.

2. Generally Contracted Pelves. Dührssen suggests performing his operation to overcome resistances of the soft parts; he claims the obstruction to the descent of the head does not lie entirely in the pelvic contraction, but that the undilated cervix plays an important part. By removing the hindrance of the cervix forceps extraction may be more easily consummated.

3. Eclampsia. Of all the indications of the second class eclampsia undoubtedly offers the strongest argument for incisions. Convulsions occur more frequently in primiparæ; the eclampsia stimulates uterine action, the two produce more or less complete effacement; at an early moment cutting may be safely carried out. The hemorrhage which may follow is beneficial to the patient. The operation shortens the duration of the anesthesia, and the time necessary for delivery.

4. Heart Disease. If a woman with advanced heart lesions is so unfortunate as to advance to full term she should be delivered at an early moment before the over-burdened heart is too severely

taxed—this is particularly true of mitral stenosis and aortic disease. On the supposition that these conditions produce their havoc at the termination of the second stage from over distention of the right heart Dührssen's incision, if bleeding results, will thereby improve the prognosis, and permit an early forceps delivery.

5. Articulo Mortis: Sudden death in Pregnancy or Labor. The law of Numa Pompilius (A. C., 600) which required physicians to remove the fetuses from the bodies of dead women is not sufficiently recognized; a timely post mortem operation occasionally will save the child. Whether a physician should remove the child from the woman in articulo mortis, or await her death is a matter of judicial as well as medical dispute—personally I would hold that in the interests of the child it should be removed before maternal death supervenes. In the latter instance, and in case of sudden death, if the head be deeply in the pelvis incisions and forceps are advisable. Above the brim version and incisions should not come into consideration with Cesarean section. The advantage of a vaginal operation in appropriate cases is manifest; a post-mortem Cesarean section demands consent of the family, the delay in arguing for it means the death of the child; if done there may be difficulty in freeing the engaged head. Delivering through the vagina no external marks of the operation are left, so the operation may be done with or without the consent of the family.

6. Other Pressing Indications. In this category come those indications which are so urgent that delivery must be completed at an early moment, threatened rupture, or actual rupture of the uterus, ablatio placentæ, and the host of other complications which imperatively demand rapid delivery.

Contra-Indications.—The chief prohibitory factor to Dührssen's incisions is an undilated internal os, or incomplete effacement of the cervix. Therefore, in multiparæ generally incisions are prohibited in the large proportion of instances coming under the second division of indications. Cervical rigidity about the external os in multiparæ secures a dilatation analogous to that in primiparæ; per contra, if the rigidity be due to stenosis of the internal os incisions are not permissible—vaginal Cesarean section would be elected. Manual dilatation is not a good precursor of incisions, for manual dilatation gives a dilatation with a minimum amount of effacement. Where effacement is more or less absent the hydrostatic dilators should always be used when practicable. In placenta previa I would hold a contra-indication, for the ana-

tomic changes present in a frank case of previa induce a marked hypertrophy of the vessels of the lower uterine segment, the cervix is especially liable to tear, the incisions are apt to extend, and hemorrhage is often severe. If incisions, fortunately rarely coming into question, are indicated, they should be made on the side opposite to the implantation of the placenta.

Dangers.—The worst enemies to an operation or any procedure are those who maintain there are no evil consequences. Dührssen's incisions never can be made without an element of risk. Three factors may arise: (1) Infection; (2) Hemorrhage; (3) Extension of the incisions by tearing. (1) Infection need not be feared by one who has a clean technique. If the woman already shows signs of a beginning infection intra partum a clear cut cervical incision will be less dangerous than the ragged tear produced by a laceration in the course of a spontaneous or instrumental delivery. (2) Hemorrhage always will be an unknown quantity until the delivery is completed; generally, the bleeding following the cuts is of little moment. While it is true that normally there are no vessels of importance in the portio vaginalis, in the pathologic conditions which indicate incisions, there may be vessels which bleed freely, for the induration of the cervix prevents proper collapse of the vessels. (3) Extension of the incisions by tearing is always serious; the parametrium may be widely opened, and the uterine artery torn. The parametrium is specially subject to inflammation when opened in labor—chronic parametric inflammations may supervene. Tearing is dependent upon two factors: (*a*) the effacement of the cervix may have been incomplete at the time of operation; (*b*) the same etiologic factors which produced the cervical condition may concomitantly cause like infiltration of the vaginal vault.

Dührssen's cervical operation demands strict indications: it should be considered as a major obstetric operation and should only be performed when recourse to other procedures is ruled out; it should not be done by one who is not skilled in obstetric manipulations, nor by one who has not the armamentarium ready at hand to meet the complications which may arise from the use of incisions. Aside from the anesthetist there should be two assistants to aid in the post partum repair which may be indicated—without them the technique will be faulty.

The Operation.—The instruments required for the operation are: extra long and broad specula, 2-4 good volsella forceps, blunt pointed scissors bent at the knee, assorted cervix needles, needle

holder, an aneurism needle may be required; artery forceps long and short (5-12 inches); dressing forceps (heavy), a slowly absorbable catgut—chromic or pyoktanin-formalin gut; appropriate gauze for utero-vaginal tamponade. In addition instruments for extraction should be prepared for use.

Technique.—The woman is anesthetized and placed on the table. The left hand is passed into the vagina (the thumb generally remaining outside). In making the lateral and anterior cuts the middle finger will usually be within the cervix and the index without—the two fingers thus will be able to fix the cervix and at the same time will serve as guides as the scissors are passed home. When the posterior incision is made it may be more comfortable to have the index finger within the cervix and the middle posteriorly. With one or two cuts each incision is carried to the vaginal vault. If the cervical rim be yielding Dührssen and Zweifel[3] recommend fixing the cervix with volsella at the site of each incision and cutting between them. The technique may sometimes be varied to advantage by widely opening the vagina with specula, catching the cervix with volsella as before described, and then under guidance of the eye and index finger the scissors are used in the four quadrants of the cervix.

In my paper on Ablatio Placentæ, presented to this Society, I incidentally recommended making oblique incisions in the cervix instead of the usual ones in the four quadrants of the portio vaginalis for these reasons: the less likelihood of the possible resulting tear implicating the uterine artery; the tears which are other than lateral in the circumference of the cervix heal better from the fact that the rectum and bladder offer supports to the anterior and posterior lips of the cervix (Schauta).[10] The number of incisions should vary with the degree of dilatation and the rigidity of the cervix, immediate extraction of the fetus follows the incision. The post partum management comprises a careful digital and ocular examination of the parturient canal; if there be no bleeding, if the incisions have not extended beyond the vaginal vault it is optional whether a repair be instituted or not. Dührssen is of the mind that the unsutured wounds heal as perfectly as the sutured; this opinion expressed thirteen years ago, is perhaps in perfect consonance with the experience of most clinicians. If hemorrhage is present two courses are open to the operator, one to sew up the wounds, the other to tampon the utero-vaginal tract. The former usually should be elected when the upper angle may be included in the loop of the first suture of each

wound; if this can not be accomplished the tampon should be used. Douching should not be practiced with the idea of arresting hemorrhage; in fact the douche may aggravate the bleeding by dislodging clots already forming.

In closing, I must express my strong condemnation of the too common practice of using forceps through the partially dilated os; forceps never were intended for dilators. If an instrumental delivery is indicated and full dilatation is not present some method of dilating the os must be used first. A great advance in the progress of general obstetric practice will be realized when the profession learns that a partially dilated os is a positive contra-indication to the use of forceps.

CONCLUSIONS.

1. The contributions of Dührssen to the subject of cervical incisions are not sufficiently original to warrant a proprietary right in the nomenclature: Coutouly, Baudelocque, Bedford, Braun, Skutsch did much to develop our knowledge of the subject.

2. Effacement of the cervix is an indispensable prerequisite to the use of incisions. For this reason incisions are especially applicable to primiparæ, and often are contra-indicated in multiparæ.

3. Incisions are indisputably of value, even necessary in essential indications. In contributory indications their use is a moot question; the judgment of the operator must decide in individual cases.

4. Manual dilatation preliminary to incisions does not secure the best cervical condition for incisions.

5. Incisions always are potentially dangerous; dangers comprise infection, hemorrhage and extensive lacerations beyond the vaginal vault.

6. Use of incisions demands an obstetric armamentarium, assistants, and a definite experience in obstetric procedures.

7. The details of the technique may be modified to suit the taste of the operator.

8. The minimum number of incisions to meet the exigencies of the case should be made.

9. Oblique incisions may be proven to be more advantageous as regards the after effects than the usual quadrant cuts.

10. In the absence of hemorrhage or accessory lacerations it is a moot question whether the incisions should be sewed up or not.

11. Immediate delivery should follow the incisions.

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REFERENCES.

1. BRAUN, C.: Lehrbuch der gesammten Gynaekologie, Wien, 1881,
p. 725.
2. SIMPSON, J. Y.: Vaginal Hysterotomy, etc., in Labors Obstructed
by Uterine and Vaginal Cancer: Monthly Jour. Med. Sciences, p. 794, 1847;
also in Obstetric Memoirs and Contributions of J. Y. Simpson, vol. i., 1855.
3. BEDFORD, G. S.: Principles and Practice of Obstetrics, 1876, p. 644.
Gives résumé of case reports published in current literature.
4. SKUTSCH: Archiv für Gynaekologie, Bd. 31, Heft. 3, p. 460, 1887.
5. DÜHRSSEN: Wiener med Presse, xxxi., 33, 1890.
6. DÜHRSSEN: Archiv für Gynaekologie, vol. xxxvii., 1890, p. 27.
7. SCHROEDER: (Ohl. nausen und Veit), Geburtshilfe, 1899, p. 590.
8. ZWEIFEL: Lehrbuch der Geburtshülfe, 1895, p. 492.
9. HOLMES, R. W.: Ablatio Placentae, American Jour. of Obstetrics,
vol. xliv., No. 6, 1901.
10. SCHAUTA, F.: Gesammten Gynaekologie, vol. i., 1897, p. 502.

THE BOSSI DILATOR; ITS PLACE IN ACCOUCHEMENT FORCE.

BY

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THE principle claimed for this instrument is that a constant,
elastic distention of the cervix will dilate it evenly and safely even
though great force is used.

Tarnier invented a three-bladed dilator embodying this princi-
ple, but his "dilatateur uterin" was not strong enough.

Bossi, of Genoa, deserves the credit of perfecting an instrument
which will, in most cases, dilate the parturient cervix in from
twenty to sixty minutes, safely, and thus enable us to empty the
uterus in a short time. The last model of Bossi is here presented.
It is simply a four-branched uterine dilator with a strong screw
on the handle and an indicator to show the amount of dilatation.

Numerous dilators have recently been put on the market, but
they all embody the same principle as the dilator of Bossi, and
vary only as to detail of mechanical construction.

Bossi had used his instrument since 1890 and had shown it at
several medical congresses, but few voices were raised in its be-
half. Recently, however, the dilator has been used with success
in Dresden, Prague, Berlin, Paris, and several other foreign cities.
Its use in this country has not been published, as I could learn,

though by verbal communication I find it has been employed at Johns Hopkins and at Sloane Maternity, New York.

The writer has used the Bossi dilator three times. The first time, being rather fearful of its power and as the case was before a class of 200 students, not enough confidence was given the instrument. As a result, the cervix was not dilated sufficiently to permit instrumental delivery. The case is briefly as follows :

Mrs. X., age 43, x-para, 9 months pregnant, in my service at Wesley Hospital; case referred by Dr. I. J. Golden. Patient had fourteen convulsions in rapid succession, before admission to hospital. On examination, patient was comatose, partly drugged. She was in good condition and the infant alive. The urine contained a small amount of albumen and varied casts. The child lay L. O. A., head freely movable. The cervix was not effaced ; the os admitted two fingers ; labor had not begun.

Before the Senior class of Northwestern University Medical School, under anesthesia, the Bossi dilator was tried. The blades were covered with rubber tubing before being inserted. Every two minutes by the watch, the wheel was given a quarter turn, and in forty-five minutes the indicator registered 9 cm. The posterior blade showed great tendency to slip out of the cervix, due to the fact that the cervix was very long and thick. When the dilatation was deemed sufficient, the Felsenreich axistraction forceps was applied. It was impossible to bring the head down with moderate effort, so the attempt was not forced. The bag of water was ruptured and the patient put to bed under the usual medical treatment. A thorough examination showed a single superficial tear on the left side of the cervix, about one inch long, and one-quarter inch deep made by one blade of the dilator. The patient recovered consciousness completely. In twelve hours pains were well established and everything went along nicely ; the head came down onto the perineum, became visible, when suddenly the patient had a slight convulsive seizure and became unconscious. The delivery was completed spontaneously, as was also the birth of the placenta. Careful examination after delivery showed only the slight superficial tear mentioned above. The patient now showed a right hemiplagia and soon died in deep coma. The child lived.

This case was probably originally a hemorrhage in the brain and not a toxemic eclampsia. Had I had more confidence in the Bossi dilator and forced the dilatation up to the point where I could deliver, the patient might perhaps have been saved ; because

it seems to me that it was the severe straining of the second stage of the labor that brought on the cerebral hemorrhage. Still, as we had no post mortem, this is not certain.

In the second case I had sufficient confidence in the instrument. Mrs. F., age 40, in my service at Mercy Hospital; v-para, 8 months pregnant. Patient uremic, without convulsions, in delirium resembling delirium tremens. Her pulse was 160 to 180 and she was apparently in a dying condition. Many superficial ulcers about the vulva. Child living, cervix closed. A Braun colpeurynter was inserted and traction made on it. As, after a few hours, no pains were elicited, the bag was removed. Cervix not effaced; os admitted two fingers.

Now, Bossi dilator covered with rubber tubing, using the same rule, quarter turn every two minutes. Cervix tore under two of the blades, the posterior and the right lateral blade. Removed instrument and reapplied it. Complete dilatation, indicator showed 10½ in thirty-five minutes, and head came well down into cervix.

Very easy forceps, living child 4½ pounds, which recovered. Uterus contracted well, no hemorrhage at all, placental stage normal. Two slight cervix tears, one, one-and-a-half inches long and three-eighths in depth, and one, one inch long and one-quarter inch deep.

Patient did not revive after delivery, but was kept alive by stimulation for thirty-six hours. This case showed well the possibilities of the Bossi, but it was an easy case.

The third case was a I-para, 35 years old, an eclamptic. Patient had neglected the warnings of edema, vomiting, headache and was found on the floor of her room in convulsions, three weeks before term. After the sixth convulsion, labor began. Narcotics were given and the bag of waters was punctured. The patient had two more attacks. When the cervix had become effaced and the os the size of a quarter, delivery was attempted. Dilatation by the Bossi dilator was accomplished in thirty minutes, the indicator pointing to 9. Tears each side of the cervix were noted. Delivery by forceps was not hard. Episiotomy performed and a slightly asphyxiated child extracted. There was no hemorrhage, and examination showed, after the placental stage, two cervix tears about one inch deep on either side. The patient's pulse was 80 at the beginning and 80 at the end of the operation. The child recovered sufficiently to cry vigorously and open its eyes, but it quickly lapsed into unconsciousness and died in coma. The pu-

pils were contracted and the infant presented the typical picture of narcotization..

The mother recovered consciousness for a few hours after the operation, but then jaundice appeared, the convulsions recurred and she died in one of them.   The urine showed 10 per cent albumin, and hyalin, granular, epithelial and blood casts.

Leopold,[1] of Dresden, recommends the instrument highly.   The dilator was used by Bischoff,[2] Rissman,[3] Knapp,[4] Lederer,[5] Ostreil,[6] Keller[7] and others.   Bossi's articles appear in the Italian,[8] which accounts for the slow acceptance of the instrument by the medical public.

Dührssen[9] makes an exhaustive study of most of the reported cases, and comes to the conclusion that the Bossi dilator is a dangerous, inefficient, and useless instrument.   Zangenmeister[10] formed the same opinion.   The literature on the subject is increasing rapidly, but enough has been cited here.   The writer's own opinion, based on these three cases and a study of the many reported cases, is as follows:

1. There is a small field of usefulness for the instrument in cases where rapid dilatation of the cervix is necessary after effacement.   Before effacement, the colpeurynter should be used. It will be more successful in multipara.

2. The instrument will be useful in dilating the cervix in those cases where manual dilatation would be successful.   It possesses advantage over the hand in the asepsis, and in that it is not tiring, so that the operator may carry out the subsequent delivery comfortably.

3. The instrument is not safe, but requires careful and skilled watchfulness, and one must search for and be ready to repair more or less extensive lacerations.   These are greater in primiparæ.

4. It should never be used in placenta previa.

5. It does not replace the colpeurynter, the use of the hand, or cervix incisions in all cases.

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REFERENCES.

1. LEOPOLD: Archiv. für Gyn., Bd. 66, Heft 1, und Cent. für Gyn. No. 19, 1902.

2. BISCHOFF: Cent. f. Gyn., 1902, No. 47.

3. RISSMAN: Cent. f. Gyn., 1902, No. 28.

4. KNAPP: Loco. cit., No. 47.

5. LEDERER: Archiv. für Gyn., Band 67, Heft 3.

6. OSTRCIL: Archiv. für Gyn. e. l.

7. KELLER: Ibidem.

8. BOSSI: Della provocazione artificiale del parto e sul parto forzato col mezzo della dilatatione meccanica del collo uterino. Ann. di ost. egin., Decembre, 1892, e 1900.

9. DÜHRSSEN: Archiv. für Gyn., Band 68, Heft 2.

10. ZANGENMEISTER: Deutsche Med. Woch., 1903, No. 6.

THE EFFECTS OF THE TOXEMIA OF PREGNANCY UPON THE CARDIO-VASCULAR SYSTEM.

BY

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The effects of the toxemia of pregnancy have been studied post mortem, following deaths from eclampsia, and the lesions found in the various organs have occasioned considerable discussion in the efforts to discover the etiology of that disease. Thus the punctate hemorrhages and areas of cellular necrosis found in the liver, the liver cell emboli, the thromboses, the emboli of placental giant cells, the dissolution of the blood and the destructive effects upon the blood-vessel walls, the areas of gangrenous pneumonia found in the lungs, the hemorrhagic foci in the brain, and the most constant of all lesions—the various pathological changes so frequently found in the kidneys,—emphasize the fact that eclampsia cannot be attributed to any cause manifesting its destructive force on any one organ, but on a number of organs, with toxemia as the important factor in the etiology of that disease. It is not my purpose to discuss the unknown origin of the toxins that so often accumulate in the pregnant woman, nor to present post mortem records of the changes found in any or all of the organs of women dead from eclampsia. It is solely to direct your attention to the physiological and pathological changes in the cardio-vascular system of pregnant women suffering from toxemia, and to present three cases, in two of which the autopsies and the clinical histories in all indicate what I have observed in no other cases—a toxemic storm spending its fury upon the heart, or upon its nervous mechanism and the circulation.

One of the most valuable signs of a threatening outburst of eclampsia is a change in the tension and rapidity of the pulse. This increased tension has been graphically shown by Tridondani (Annal de Ostetricia e Gynecologie, 1901, No. 1), whose sphyg-

mographic tracings display a strong systolic pulse, followed by a
rapid fall in pressure and quick rebound, the line of ascent being
shorter and its summit sharper, during the convulsive seizure.
We may presume that when toxins have accumulated in sufficient
strength to produce their first effect—that of irritation, the vaso-
constrictor nerves are stimulated and a high tension pulse follows.
When the accumulated poisons finally are sufficient to overwhelm
the patient, the pulse tension falls, and wholly disappears in a
fatal case, just as convulsions are succeeded by a lethal coma in
many fatal cases. In a most interesting physiological study,
"The Rôle of Inhibition in the Normal and in Some of the Path-
ological Phenomena of Life" (*Medical Record,* June 7, 1902),
Meltzer states some physiological facts that have direct bearing
upon the possible interference of the nervous mechanism of the
heart and the circulation by the irritant action of toxins.

The vagus is the inhibitory and the accelerator is the motor
nerve of the heart. Electric stimulation of one causes inhibition
and of the other acceleration of the heart beat. Stimulation of the
accelerator causes: (1) An increase in the number of heart
beats; (2) an increase in their height and force; (3) an increase
of the tonus of the heart; (4) an increase of the excitability of the
heart muscle; (5) an increase of its conductivity, and (6) causes
a very active variation of the muscle current. When, however,
vagus and accelerator are stimulated simultaneously with the
same electric current . . . we see after the cessation of the
stimulation, the after effect of the stimulation of the accelerator
coming out in the same manner as if it had been stimulated alone.
. . . When, therefore, vagus and accelerator are stimulated to-
gether with a strong current for a long time we see the inhibition
which sets in first, gradually changing to acceleration, owing to the
exhausted condition of the vagus while the accelerator still remains
intact for some time. Similar conditions prevail in the vascular
system, *i.e.,* irritation or stimulation of the vaso-motor nerves
usually shows a preponderating influence of the vaso-constrictors
and arterial tension rises.

By these physiological facts we explain the clinical fact
that the most important clinical and constitutional sign
of a beginning toxemia in pregnancy is to be found in a
careful study of the woman's pulse. Whenever a coated tongue,
headache, nausea, extreme nervousness with insomnia, disturb-
ances of the special senses, or other more pronounced symptoms
of toxemia are noticed in a pregnant woman, the pulse, if studied

prior to that time, will then invariably show increased tension and the headache so commonly complained of is most promptly relieved by drugs that relieve arterial tension. The value of sphygmographic study of the pulse of pregnancy to indicate a toxemia is a refinement in the care of pregnant women that will surely have practical value, especially in cases of threatened eclampsia. It is at this stage that prophylactic measures against eclampsia should be instituted, and the result of such treatment will be as promptly shown in the pulse tension as in the most careful and repeated urinalysis, the value of which, as ordinarily made, is doubtful. When convulsions occur the real value of venesection, of chloral, and of veratrum viride seems to be in their relief to pulse tension, since neither of them, except the depresso-motor effect of chloral upon the brain, are of benefit, and indeed they are contraindicated, unless the pulse be one of high tension. Cases that are almost overwhelmed with accumulated toxins, and that exhibit a rapid, low-tension pulse, are never improved by such treatment.

The object, then, of this communication is to impress the fact that, while the grave toxemia of pregnancy usually through the above-mentioned cardio-vascular changes induces disorder of the brain manifest in convulsions, in rare cases some other organ, for example, the heart, bears the brunt, and the clinical evidences are of that organ embarrassed or even overwhelmed, the patient dying without convulsions. In other words, we may speak of a cardiac eclampsia resulting from the toxemia of pregnancy. The first case of what I shall call "cardiac eclampsia" in labor, was that of Mrs. H. (case No. 4.867. Preston Retreat), æt. 38; primigravida.

Admitted two weeks prior to labor. Urinalysis showed low specific gravity; no albumen; total solids excreted slightly less than normal for her weight; there were no constitutional signs of toxemia, although no special study of her condition was made because the patient did not complain of any abnormal symptoms. Four hours after a spontaneous delivery, the pulse, which had increased in tension and frequency during the labor, became very rapid, one hundred and seventy to the minute. Air hunger, cyanosis, severe precordial distress, fear of impending death, and the very rapid high-tension pulse were the symptoms of her alarming condition. The mind was clear, and there was no disorder of the special senses. The sudden cardiac storm, at once suggested hemorrhage, but careful investigation found no evidence of frank or concealed bleeding. There was no history of previous cardiac

disease, and auscultation revealed no signs of organic valvular
disease. The most vigorous cardiac stimulation was administered.
Alcohol, digitalis, strychnia, nitro-glycerine, atropia, intravenous
salt solution were freely employed throughout twelve hours with-
out producing the slightest effect, and the patient died sixteen
hours after delivery. Her death was inexplicable. The notes of
the autopsy made by Dr. Joseph Sailer are as follows: Body of
well-nourished woman; middle-aged; no marks of external vio-
lence; thick layer of subcutaneous fat. Intestines greatly dis-
tended by gas; peritoneum smooth and shining; small amount of
serum in cavity. *Uterus.*—Four inches above symphysis, pale,
and gives sensation of edema. Endometrium normal. The right
and left pleural cavities are obliterated by dense adhesions. Pleura
firmly adherent to outer layer of pericardium. No aneurism.
Heart.—Normal in size; considerable fat in epicardium; the right
side is moderately distended and contains a large chicken-fat clot:
foramen ovale not patulous; tricuspid admits three fingers, and is
slightly thickened. The left auricle contains a chicken-fat clot,
the endocardium is pale; the mitral valve admits two fingers; the
wall of the left ventricle is greatly hypertrophied. The aortic
valve shows moderate sclerosis at its base; there is very slight
atheroma at base of aorta; orifice of coronary artery shows be-
ginning atheroma; posterior coronary artery normal. *Lungs.*—
Edematous; crepitant throughout; no areas of consolidation.
Spleen.—Pale; surface of section granular and grayish in color.
Supra-renal capsule shows post-mortem softening. *Kidneys.*—
Ureters normal; both kidneys are enlarged; very soft; capsule
strips readily; numerous areas of congestion on surface corre-
sponding to intense congestion of cortex; cortex very narrow,
structure of kidney difficult to make out; cut surface pale and
granular; glomeruli very distinct. *Liver.*—Pale; grayish color;
signs of cloudy swelling.

The condition of the kidneys pointed to toxemia as the probable
cause of this woman's death, and the manner of her death pointed
to the heart as the organ that was overwhelmed. The heart mus-
cle showed no signs of degeneration, hence the rapid pulse can
only be explained by disturbance of the nervous mechanism of the
heart, which disturbance, in view of the clinical symptoms of a
case presently to be related, was a toxic irritation of the accelerator
and inhibitory nerves of the heart, acting in the manner referred
to in Metzler's interesting study noted above.

A second case was that of Mrs. G., seen in consultation with Dr.

W. D. Robinson. Two weeks before her expected confinement she presented symptoms that induced Dr. Robinson to seriously consider the necessity for terminating pregnancy in order to avoid a possible eclampsia. Spontaneous labor, however, occurred at this time and the patient gave promise of speedy convalescence. On the fourth day of the puerperium she unexpectedly became eclamptic and comatose. It was then I was asked to see the patient. She received vigorous treatment for the attacks, including veratrum viride, chloral, salt solution, chloroform, free catharsis induced by salines, hot air baths with ice to the head. A catheterized specimen of urine at this time showed albumen (0.125 gr. to the fluid ounce), many narrow and medium-sized hyaline and a few dark granular casts. The specific gravity was 1036, and the urea percentage 1.8.

The coma and convulsions disappeared within twelve hours. Excretion was reëstablished and the patient's only bad symptom was an exceedingly rapid heart action, suddenly rising from 87 to 160. There were no history and no sign of organic heart disease. The pulse rate throughout the next ten days remained about the same, the heart's action being very violent and occasionally intermittent. Throughout this period her general condition was that of steady convalescence, with the exception of the rapid heart action. When the rapid heart action first appeared she received very free cardiac stimulation, receiving as much as twenty-four grains of digitalis in the first twenty-four hours and nitroglycerine and caffeine besides. These drugs had not the slightest apparent effect, and after substituting strophanthus and digitalin for a time in proportionately large doses, had to be discontinued. Their failure to influence the heart's action in any manner whatever and the fear of their sudden over action made it necessary and wise to discontinue them. Bromides and belladonna were then tried in the hope that they would quiet the nervous mechanism of the heart, but without any effect whatever, and they were discontinued.

Dr. Tyson at this time saw the patient with us and agreed with us that further drug treatment would not avail. My observation of this case impressed me with the belief that the toxemia of this patient had destroyed the equilibrium normally existing between the vagus and the accelerator nerves of the heart, and if we possessed a drug that could act directly and only upon the vagus and thus inhibit the heart's action, the pulse would be controlled. Such a drug does not exist. Indeed, in studying the relations of inhibitory nerves to their antagonists, Metzler declares that there

is as yet in the entire biology not a single fact which can with
certainty be interpreted as indicating an absolute specific stimula-
tion of either of the forces.   On the contrary, he says, wherever
there is an occasion for either of the forces to be reached separate-
ly by a stimulus it is found that all known stimuli are effective for
either force.

With these ideas in mind it seemed that we could do nothing
but await the disordered nerves' recovery from the irritant action
of the toxins, in which event the patient would get well, or await
her death should the heart finally succumb.   The symptom was
indeed that of tachycardia.   Dr. Tyson suggested later the use of
large draughts of ice-cold water, a means by which Dr. Hiram
Corson learned to relieve his own attacks of tachycardia.   Mrs.
G. was given ice-water repeatedly and her chart very curiously
shows some temporary improvement in the pulse rate.   I believe,
however, that the gradual return to a normal pulse rate indicates
that the irritant action of the toxins gradually and finally ceased
and the heart correspondingly regained its normal rhythm.

In conclusion I wish to offer the history of a third interesting
case, which may or may not belong to this subject.   The autopsy
showed the only lesion in the heart, and whether a toxemia
can or does produce the lesion there found must be determined
by a knowledge of the pathology of the heart muscle I do not
possess.

The patient, Mrs. L., twenty-three years of age, was delivered
of her second child naturally.   Her puerperal convalescence dur-
ing four days was normal in every respect, her temperature re-
maining below 99° F. and her pulse not above 80.   On the fourth
day she complained of headache and sat upright in bed.   She was
stricken with cardiac failure and died before the nurse could reach
her.   Dr. David Edsall made the autopsy.   His notes are as fol-
lows: The whole heart is flabby, the muscle somewhat softer
than normal.   The right ventricle and auricle are slightly dilated.
The cavities of the left side are not dilated.   The color is normal.
Microscopically there was no evidence of inflammation or degen-
eration, except marked segmentation of the fibres.   The latter
were, in all specimens examined, strikingly fragmented and sep-
arated by spaces, lying between the fragments and between the
individual fibres, that were of various widths, often as broad as the
fibres themselves.   There was no round-cell infiltration.   The
fibres stained less clearly than usual.   There was no increase of

connective tissue.   The segmentation constituted the only abnormal condition found.

It is a well-known fact that when pregnancy is complicated by organic heart disease, the appearance of toxemia renders the prognosis of the heart lesion more grave.   Since there are such widespread changes induced by toxins, we must not expect the heart muscle to escape.

I have no doubt that some cases of sudden death after labor can be explained by an unrecognized toxemia originating during pregnancy and suddenly declaring itself by what I have termed a "cardiac eclampsia."

A REPORT OF THE MAJOR OPERATIONS PERFORMED ON THE SERVICE OF DR. H. D. NICHOL, AT THE WOMAN'S HOSPITAL IN THE STATE OF NEW YORK, FROM FEB., 1901, TO JUNE, 1902, WITH REMARKS ON THE TECHNIQUE EMPLOYED.

BY

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(With three illustrations.)

Now that our Alma Mater, the Woman's Hospital, which was the first to foster the special study of diseases peculiar to women, has reached a time in its career when radical changes have been deemed necessary and the old structure in which Sims, Emmet and Thomas worked out their enriching ideas, is soon to be razed, it seems most fitting that we should give to the surgical world an account of some of the work accomplished during its last days.

It is my object to present a résumé of the major abdominal operations (109 cases with mortality of 2.75 per cent) performed on Dr. Nichol's service from February 1, 1901, to the closing of the hospital, June 20, 1902.

This period is selected because my association with the service began on the former date, and only those cases are here reported which were operated upon by Dr. Nichol or myself. The conclusions drawn, however, are the outcome of both public and private work extending beyond that embodied in these statistics. I wish also to say that while Dr. Nichol and myself entertain views almost

identical in regard to technique and after-treatment he should not be held responsible for every opinion herein expressed. I wish to publicly thank my chief for the many opportunities afforded me and for the encouragement and support he has ever been ready to give.

The work which constitutes the foundation of this article was done upon organs situated within the lower abdominal region; our first consideration will, therefore, be the selection of routes.

At the time vaginal section came in vogue the mortality in cases operated on through the median incision was quite high. With the introduction of this new mode of attack mortality was greatly reduced, and we hailed with enthusiasm this procedure which, while it diminished the risk to life, apparently gave results equally good. But experience soon taught us that work done by the vaginal route was ultimately less satisfactory than that done through the median incision. However, the knowledge acquired through the vaginal method was of great service to us on our return to the median incision.

The advantages the vaginal route afforded were several. The time required to perform operations was less, the shock and pain following operations were greatly diminished, and the disfigurement of person altogether avoided. The low mortality was due to the shortening of time of operation, to the lessening of shock by the limited exposure and handling of the intestines, and the free vent given to infectious fluids when encountered.

Through this route the operator depends almost entirely upon touch to complete his work; through the abdominal route he is afforded the advantage of vision and space which permit of exact repair and adjustment of affected organs.

The vaginal route encourages radical procedure, the abdominal route conservative procedure.

In the early days of abdominal surgery the necessity of keeping the intestines away from the field of operation or protecting them from atmospheric influences, and of handling them as little as possible was not thoroughly appreciated. These organs were often allowed to protrude from the abdominal wound protected imperfectly. Sepsis, in those days, was the common cause of death, but many deaths were doubtless also due to ileus (a paralysis of the intestines) resulting from this excessive handling and exposure. When the vaginal method came in vogue we soon entertained little anxiety regarding the functioning of the bowels, and freedom from ileus became a conspicuous feature of the patient's

convalescence. As this happy sequel could be explained by the limited handling and exposure of the intestines we were led to the conclusion that if similar conditions were created when working through the median incision our results should be equally satisfactory. Experience eventually confirmed these conclusions.

As the majority of cases herein reported were operated on through the median incision I shall confine my remarks chiefly to the technique of abdominal operations through this route. The length of the incision should depend entirely upon the character and extent of work to be done ; it should be long enough to admit of easy manipulation ; each step being facilitated by a free incision. It is desirable, but by no means essential, that the incision be made along the linea alba. The opening of the peritoneal cavity can be made at any point above the bladder, but when there exists evidence of previous inflammatory action it is advantageous to open at some point near the upper angle of incision, as the inflammatory action is usually less extensive about this region. After entering the abdomen the first important step is to secure ample space for vision and manipulation ; this is done by the aid of Trendelenburg's posture and the crowding of the intestines away from the field of operation with gauze pads. If the omentum is of sufficient size it should be utilized to cover the intestines, the gauze pads being arranged over it. In this way the intestines are not only protected from unnecessary handling and atmospheric influence, but also from whatever septic material may escape from the diseased organs.

Abdominal Hysterectomy.—In the series of cases here recorded abdominal hysterectomy was performed thirteen times without mortality ; in ten of these cases the cervix was left, and the abdomen was closed without gauze drain or packing ; in three the cervix was removed and vaginal packing employed. In eight of these cases one or more adnexa were left, and in five both adnexa were removed. As a preliminary step to the performance of hysterectomy it was our custom always to make the vagina surgically clean and apply strong carbolic acid and alcohol to the cervical canal.

In removing the uterus through the abdomen our first step was to apply two strong clamps, or the angiotribe and a clamp on either side of the organ close to it and parallel to its long diameter, then to sever the tissues between these clamps. All vessels were by this means held under temporary control. If it were an incomplete hysterectomy the uterus was amputated just below the internal os. The amputation was done rapidly with the knife or scissors, and

the uterine arteries grasped separately by hemostatic forceps and tied with No. 1 or 2 catgut. The temporary clamps on the broad ligaments were now removed and each bleeding vessel (if bleeding occurred) separately ligated and the raw edges of the ligaments stitched together with No. 1 catgut. This suturing was continued across the lower portion of the pelvis so as to cover the stump of the cervix with the anterior and posterior peritoneal flaps. If the cervical canal had not been previously cleansed per vaginam with carbolic acid we applied the actual cautery or carbolic acid through the abdomen to the canal in the cervical stump. This method is practically bloodless and has been uniformly successful. Gauze drain or packing was used in these cases only when pus contaminated the field of operation or when the raw surfaces left after removing the diseased organ or organs were too extensive to be covered with peritoneum or when the bleeding could not be controlled by ligatures. The drain or packing was sometimes through the posterior vaginal fornix, sometimes through the cervix. When through the latter the canal was first forcibly dilated. If it were a complete hysterectomy the uterine arteries were grasped and tied separately when severing the cervix from its vaginal attachments. Gauze strips were passed into the vagina and the vaginal wound closely packed. Over this packing the anterior and posterior peritoneal flaps were brought together with fine catgut, thus closing the vaginal portion of the peritoneal cavity. If pus escaped during operation or there existed extensive bleeding surfaces peritoneal covering of the gauze was not attempted.

Vaginal Hysterectomy.—Six hysterectomies were performed by the vaginal route, but I shall refer only briefly to this method, as the chief object of this paper is to review the technique of our abdominal work. In all these cases my angiotribe was used exclusively. Secondary hemorrhage followed in one case, which was soon discovered and checked. Death occurred four days after from infection. The convalescence of the patients operated on with the angiotribe was uniformly painless and uneventful.

It is our opinion that healthy ovaries should never be removed with fibroma uteri. If the hysterectomy be done for malignant growth, we consider it both justifiable and advisable to remove both ovaries.

Myomectomy.—Myomectomy was performed only three times. As a preliminary step to this operation it was our custom to first cleanse the uterine cavity by curettage and the applications of carbolic acid and alcohol so as to insure thorough asepsis should the

uterine cavity be entered when enucleating the tumors from their beds. We usually closed the spaces left in the wall of the uterus by the removal of the tumors with a single layer of plain catgut sutures No. 2 passed deep into the tissues. The bottom of the spaces was sometimes first closed with fine catgut. We always preferred the operation of myomectomy to hysterectomy no matter how many tumors existed if there seemed to offer the possibility of sufficient uterine tissue remaining to form a functioning organ.

Adnexal Diseases.—The technique employed in the removal of diseased adnexa was practically the same in principle as that followed in abdominal hysterectomy, viz., the base or attachment of organ or organs to be removed was either crushed with the angiotribe or clamped with strong forceps, the diseased tissue cut away, all bleeding points were tied separately, and the raw edges of the remaining tissues sewed together. The number of cases operated on for diseased adnexa excluding those in which hysterectomy was performed was twenty-six, the majority consisting of suppurative cases. Conservative or repairative surgery was applied in the treatment of these conditions as far as was possible, leaving part of the tube in a patulous state if practicable and never removing the entire ovary if there existed any healthy tissue.

Large Pus Collections.—If on opening the abdomen, a large pus collection was discovered, more or less free from surrounding structure, tense and liable to rupture by manipulation, it was deemed advantageous to aspirate this pus through the abdominal opening, but when this collection was found firmly embedded and surrounded by thick plastic exudates we considered it advisable to evacuate this pus per vaginam. The opening for evacuating under these circumstances was made through the posterior fornix by a sharp-pointed curved scissors. One hand is kept in the abdomen over tumor mass, the other hand directs the scissors through the posterior fornix and into the abscess cavity. The scissors is then opened wide and withdrawn, the cavity is washed out thoroughly and packed with iodoform gauze; the abdominal wound closed in the usual way; the abscess sac continues to drain per vaginam and as the gauze is withdrawn the walls of the sac gradually shrink and the cavity eventually becomes obliterated. In dealing with such abscesses by this combined method opportunity is given to find every focus of pus and drain thoroughly with practically little risk to life.

Old Abscess Cavities.—Old chronic abscesses which have ruptured or have been opened per vaginam, but which drain in-

completely, often defeat the most persistent antiseptic treatment. These cases are not often met with now but radical surgery offers here also a permanent cure with minimum risk to life.

A description of the technique followed in such cases I have already given to this Society; in brief, it is as follows: The vaginal outlet of the abscess or abscesses is first well dilated and the cavity or cavities thoroughly cleansed with an antiseptic solution. These cavities are then tightly packed with iodoform gauze converting thus the abscess mass into a solid and comparatively clean body. The abdomen is then opened and the diseased structure removed. We report only one case illustrative of this class which was most persistent and discouraging until treated as described.

Suppurative Processes and Ectopic Gestation.—In view of the fact that suppurative processes do associate themselves with ectopic gestation, especially when this latter condition has in the early stages been mistaken for a miscarriage, and curettage done, and that pelvic abscesses resulting from miscarriages frequently present symptoms which simulate those of ectopic gestation, we consider it advisable in all fluctuating pelvic tumors of recent origin, particularly those of an inflammatory character, to always open first per vaginam.

A posterior vaginal section enables one to determine positively the condition existing without subjecting the patient to any unnecessary risk. If the fluid be pus the operation is completed per vaginam by irrigation and packing with gauze; and if the fluid be blood, indicating ectopic gestation the abdomen is opened by the median incision and the condition dealt with as necessity demands. If both blood and pus be evacuated, the pelvis is thoroughly irrigated and the ectopic mass removed per vaginam, if possible, but, if necessity demand it, the combined operation is done. This method of handling ectopic gestation reduces the mass, thus facilitating the handling per abdomen, and the opening per vaginam permits of an easy introduction of gauze packing which is usually necessary in these cases. These remarks are of course not applicable to cases which present symptoms of rupture and free hemorrhage in the peritoneal cavity. Such cases demand an immediate median incision that the hemorrhage may be at once controlled. We do not favor any of the aspirating instruments devised for the purpose of evacuating pelvic tumors. We prefer a free posterior incision dissecting with the finger when necessary the cellular structure about the mass so as to clearly define it and discover a point of fluctuation. A long sharp-pointed scissors is then

passed along the finger and plunged through the abscess wall, the blades of the scissors are immediately opened so as to dilate the outlet created and the instrument withdrawn; the cavity is thoroughly irrigated with an antiseptic solution and packed with iodoform gauze. We prefer gauze to rubber tubes for the reason that the sac wall will shrink uniformly with the withdrawal of the gauze. If the gauze is withdrawn too soon the opening will contract before the sac is completely shrunken, and a re-collection of pus will occur. Under these circumstances the opening should be at once dilated, which can be done without an anesthetic and the cavity again cleansed and packed. When rubber tubes are anchored in the cavity the outlet for the escape of pus is of course insured, and the cavity can be conveniently irrigated, but there comes a time in the shrinking of the sac when these tubes become irritants by their contact with the sac walls within, and the process of healing is materially retarded.

Uterine Displacement.—Until September 3, 1901, we corrected uterine-displacements by the suturing of the fundus of the uterus to the anterior abdominal wall; on this date I devised and put into practice a method of correcting such displacements which is now more or less familiar to you in theory if not in practice. I fully appreciate the advantages of Alexander's operation when it is applied to suitable cases; it has often suffered in reputation for the reason that unrecognized complication existed when this procedure was adopted; nevertheless its field of use is limited and it should be employed only when the uterus is movable and when there exists no other pelvic abnormality than a displaced uterus.

The operation which I devised for restoring the uterus to its normal position and which we have employed continuously since September 3, 1901, should be described in brief as a shortening of the round and broad ligaments. This operation is especially adapted to cases where intestinal and adnexal complications exist; it differs radically from all other intra-abdominal round ligament shortening such as devised by Wylie, Mann and Dudley. The so-called shortening in these operations is, strictly speaking, not a shortening but a folding of the ligaments upon themselves, and, when the stitches have ceased to function and disappear, the ligaments are likely to unfold when unusual pressure is brought to bear upon them.

The strength of a chain depends upon its weakest link; and the strength of this folding of the ligaments is determined by its weakest point. The greatest tension upon a folded ligament is at a point

of the fold on a line with the general direction of the ligament.   If the strength of this point of union is not sufficient to resist the pressure which is brought to bear upon it then it yields and in turn each point of the fold offers its resisting force.

The principle of shortening by folding the ligaments upon themselves and depending upon peritoneal union for strength is faulty and undesirable. *Intra-abdominal shortening of the round and broad ligaments* is especially adapted to displace uteri which are fixed by adhesions and when intestinal or adnexal complications exist.   The operation is performed through the median abdominal incision.   The usual precautions are first taken to isolate the field of work, such as the use of Trendelenburg's position and wet gauze pads.   If the tubes and ovaries are diseased they may be removed in part or in toto, as necessity demands.   The appendix is always examined and removed if diseased ; if healthy it is removed if time allows.

The uterus is brought up into a normal anterior position and grasped with a vulsellum forceps.

The abdominal wall is retracted on the side corresponding to the ligaments upon which we wish to work.   The round ligament is then grasped with a small forceps, and severed within one-quarter inch or less of its uterine insertion, and cut away from its broad ligament bed to the extent required.

It is always well to transfix the pelvic portion of the round ligament, at a point beyond that at which it is to be severed, with a suture so as to prevent this end, when severed, from retracting. When the re-section of the ligament has been completed two or three sutures are passed through the cut ends so that when tied they will bring these ends in permanent apposition.   I prefer these sutures to be of silk.   When the cut ends are thus united the raw surface of the broad ligament folds at a right angle to the general direction of the round ligament, and thus, folded, it is stitched together with fine catgut sutures anteriorly and posteriorly.   This union of the broad ligament surfaces adds material strength to the newly created support.

Sixteen cases of intra-abdominal shortening of the round and broad ligaments are reported in this series.   With two exceptions the results have been most satisfactory.   In neither of these cases were the ligaments re-sected sufficiently.   Their relaxation soon allowed the intra-abdominal pressure to act upon the anterior surface of the uterus instead of upon the posterior surface, causing

a re-displacement of the organ. Two of the successful cases are now pregnant and I shall watch with much interest the course of their labor and convalescence.[1]

Appendectomy.—It was our custom to examine the appendix in every case when time would allow. If the organ was found to be appreciably diseased, it was always removed; if not diseased we also removed it, provided in so doing we did not unnecessarily prolong the operation. Removing the organ when not diseased we considered justifiable because it insured the patient against the possibility of a painful and dangerous affection, and the additional operation being minor, adds but little to the danger of the primary operation. The appendix is sometimes found attached or embedded at points far from its normal position. It may be found in the region of the kidney, buried in the pelvis and connected with the right and sometimes with the left tube by inflammatory products. Under these circumstances an incision over McBurney's point would render both the finding and the handling of the organ difficult, for this incision necessarily limits us, whereas the median incision gives us the opportunity to see, examine and treat with exactness all conditions within the lower abdominal region, besides offering us the advantage of conveniently draining through Douglas' cul-de-sac when pus is encountered.

We are, therefore, of the opinion that appendectomy in the female should usually be performed through the median incision.

Of the twenty-four appendectomies done twenty-one of them were associated with other pelvic operations; in none of these did mortality occur.

Gauze Packing.—The action and purpose of gauze drain or packing, in septic cases, is, it seems to me, chiefly to limit the infected area and convert this area into an external wound. In this way a free vent is given to the septic material which, when allowed to remain in the closed peritoneal cavity cannot always be coped with by nature successfully. The much disputed point as to the utility of gauze as a drain overshadows its other important functions. It is capillary in its structure and therefore capillary in its action, and according to the laws of capillary attraction will drain up or down wherever the vent is situated for the escape of the fluid. Its action as a drain to the general peritoneal cavity lasts however only a few hours; its presence stimulates nature to throw

[1] Since the reading of this paper both these cases have passed through normal confinement.

out a protective plastic exudate, and when this has been accom-
plished and the gauze encased by it the general cavity is completely
walled off. After this has occurred, the drainage which takes place
must necessarily come chiefly from the surfaces immediately sur-
rounding the gauze packing and not from the general peritoneal
cavity. Gauze packing, therefore, acts not only as a drain, but as
a framework around which nature builds to protect herself. The
newly created cavity in which the gauze is situated must now be
cared for. After twelve or fifteen hours have elapsed from time
of operation the meshes of the gauze about the outlet of the cavity
become clogged with debris. This portion of the gauze must be dis-
lodged and pulled down; when this is done there will usually escape
a certain amount of fluid which has collected and which the gauze
has not been able to drain away. Each twenty-four hours the
gauze should be further dislodged and several inches pulled down,
the amount depending upon the quantity in the cavity, until at the
end of from four to six days the gauze has been completely re-
moved. By this constant withdrawal of the gauze its capillary ac-
tion is encouraged, its compactness and bulk diminished and the
cavity is permitted to gradually and uniformly shrink and disap-
pear. We prefer iodoform gauze for the reason that it prevents
the disagreeable odor which accompanies the use of plain gauze;
its mild antiseptic power tends also to interfere with the invasion
of bacteria from the vagina. If we are correct in our views regard-
ing the closing of the general peritoneal cavity at the end of twen-
ty-four hours by lymph products thrown out about the gauze, then
the continued elevation of the body, advised by some surgeons,
would seem to offer but little advantage excepting for the first few
hours after operation. Most of the above remarks are applicable
also to those cases where gauze packing has been used for the pur-
pose alone of checking hemorrhage. In cases where extensive
bleeding surfaces exist and when it has been necessary to use a
large amount of gauze we sometimes find that its constant pressure
on the intestines and surrounding structures become a source of
great irritation, and will, at times, occasion symptoms, after twenty
or more hours, closely resembling those of secondary hemorrhage.
Under these circumstances a considerable portion of the gauze
should at once be withdrawn. Relief will immediately follow.
There is an existing impression that gauze packing always occa-
sions extensive adhesions; such has not been my experience, and
I think we have but little to fear if the gauze is properly placed. I
have had the opportunity on several occasions to re-enter the ab-

dominal cavity through the median incision in cases where previously packing had been used both vaginally and abdominally, and have, on every occasion, been surprised at the few adhesions existing.

Suturing the Abdominal Wound.—The methods of closing the abdominal incision are almost innumerable. The so-called "through and through" stitching of the wound—or the passing of interrupted sutures through all the abdominal structures on each side— we have practically abandoned excepting in cases where hasty repair is demanded. While this method of repair saves time and when done properly is as certain to give as firm a wall as any other procedure, yet the resulting scar is usually large and disfiguring and not infrequently do we find stitch abscesses. It is difficult to adjust with nicety the tension of these sutures, and if this tension be in excess the circulation in the tissues about the wound is necessarily interfered with. These tissues being thus poorly supplied with blood, are often unable to resist the invasion of the skin bacteria (Staphylococcus Pyogenes albus) which find their way down along the sutures and form abscesses.

We are of the opinion that the length of the incision per se increases to no appreciable degree the danger of hernia, but that
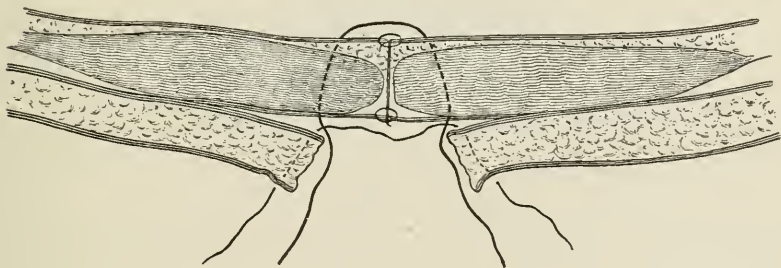
Fig. 1.

this danger depends altogether upon the exactness of repair. Nor do we believe that any one method is the best; each has its advantages and disadvantages, and the failures or successes depend upon the quality of the material used and the exactness of the operator.

If the operator who adopts the "through and through" method fails to include all the structures of the wall and carries his sutures only through the skin, fat and peritoneum his chances of a resulting hernia are excellent; if the operator who adopts the "layer by

layer" method, places his interrupted sutures at intervals too great, he also is liable to failure.

The method which has given us the greatest satisfaction is illustrated in the accompanying drawings and photographs. The steps of this method are as follows: Two or more plain catgut sutures, No. 3, are passed through fascia, muscle and peritoneum on each side, their ends fastened with clamps and allowed to hang out of
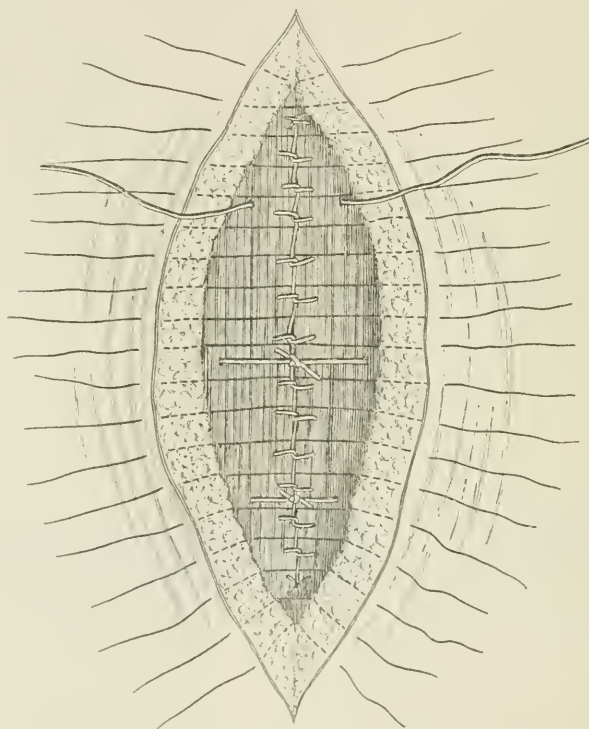

Fig. 2.

wound. The peritoneum is then brought together separately by a continuous suture of plain catgut No. 1. The fascia next united by a continuous suture of plain catgut No. 2, or by interrupted sutures. The first sutures inserted, No. 3 catgut, are then tied; these sutures serve to relieve the strain upon the larger sutures, and also close all dead space between fascia and peritoneum. The skin is then united with black silk carried down to fascia on each side. The dressing of this wound is plain sterilized gauze. The abdominal binder is made snug but never tight and if the patient expresses discomfort at any time it is loosened, which relieves the

distress and diminishes intestinal pressure. Unless symptoms arise indicative of inflammatory action we frequently do not take down the dressing until on or about the sixth day, when we also remove the black silk stitches.

After Treatment.—Whereas our chief concern formerly was to stimulate immediate action in the intestines, our disposition now is to encourage quiescence for a few days.
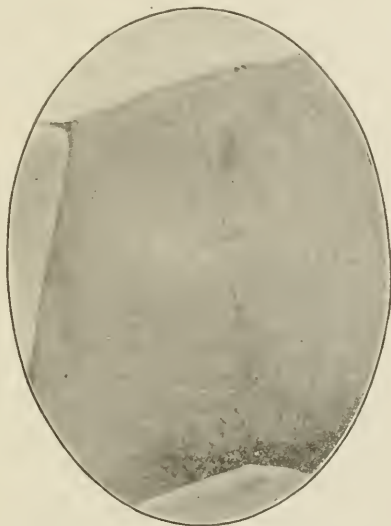

Fig. 3.
Twenty-seven days after operation.

Morphine we now use with less fear during the first thirty-six hours; in fact, we find the use of this drug of the greatest service, especially after severe operations, and we never hesitate to give it in sufficient quantities to completely subdue pain. It quiets the nervous system, induces sleep, and allays nausea. If the bowels have not moved of their own accord at the end of forty-eight hours we give a high enema, followed immediately by calomel and magnesia sulphate.

In regard to the abdominal support, I consider it of little value after the end of six or eight weeks. If the patient finds that she is much more comfortable with it than without it I consent to its being worn for a time longer. I discourage its constant use, however, believing that it impairs the tonicity of the abdominal walls.

If the sutures are properly placed and the wound is aseptic the question of hernia is practically settled when the abdomen is closed, and the long continued use of the support will contribute little if any to the prevention of this unhappy sequel.

		Cases.	Recov.	Deaths.
Abdominal Sections:	without drain or gauze packing	81	80	1
	with vaginal drains or gauze packing	15	14	1
	with lumbar drain or gauze packing (peritoneal cavity not entered)	2	2	0
Vaginal Sections:	peritoneal cavity entered....	7	6	1
	peritoneal cavity not entered.	4	4	0
	Total	109	106	3

Mortality 2¾ per cent.

ABDOMINAL SECTIONS

(Without drain or gauze packing.)

	Cases.	Recov.	Deaths.
Hysterectomies: Cervix with one or more adnexa left (all fibroid uteri).....................	7	7	0
Hysterectomies: Cervix left, adnexa removed (2 fibroid uteri, 1 double pyosalpinx)..........	3	3	0
Salpingo oöphorectomy: Not including those cases associated with the removal of uterus. (In 17 cases one ovary or part of ovary was left, in 6 cases both ovaries were removed.)........	23	23	0
Myomectomies	3	3	0
Ventral Suspensions...............................	12	12	0
Shortening of Round and Broad Ligaments.........	16	16	0
Removal of Ovarian Cysts........................	11	11	0
Removal of Par-Ovarian and Broad Ligament Cysts..	2	2	0
Exploratory Incisions	6	5	1
Appendectomies: 21 associated with other operations)	24	24	0
Intestinal Repairs (associated with other operations).	3	3	0
Removal of Omental Growth (malignant)..........	1	1	0
Cesarean Section	1	1	0

ABDOMINAL SECTIONS

(With drain or gauze packing.)

	Cases.	Recov.	Deaths.
Hysterectomies: Cervix and both adnexa removed (fibroid uteri)	2	2	0
Hysterectomies: Cervix and one adnexum left (fibro-myoma)	1	1	0

Salpingo oöphorectomy: In 2-cases one ovary or part
of ovary left; in 1 case both ovaries removed
(pyosalpinx) 3 3 0
Intestinal Repairs (associated with salpingo oöphor-
ectomies) 3 3 0
Ectopic Gestations 4 3 1
Removal of Old Abscess Sacs (previously drained
per vaginam) 1 1 0
Removal of Large Adherent Ovarian Abscess....... 1 1 0
Broad Ligament Cyst.............................. 1 1 0
Exploratory Median Incision (evacuation of pus per
vaginam) 1 1 0
Uretero Vesical Grafting (uretero uterine fistula)... 1 1 0

LUMBAR INCISION.

	Cases.	Recov.	Deaths.
Nephrectomy: Pyonephrosis due to multiple stones.	1	1	0
Nephrotomy: Stones in pelvis of kidney...........	1	1	0

VAGINAL SECTIONS.

(Peritoneal cavity entered.)

Hysterectomies: (both adnexa removed) (carcinoma
uteri) 5 4 1
Hysterectomies: (one adnexa removed) (carcinoma
uteri) 1 1 0
Removal of Cervix: Uterus previously removed
(recurrent malignant growth)............. 1 1 0

VAGINAL SECTION.

(Peritoneal cavity not entered.)

Evacuation of Large Pelvic Abscesses.............. 4 4 0

49 WEST 38TH STREET.

REPORT OF A CASE OF TUBERCULAR PYELONEPHRITIS,
URETERITIS AND CYSTITIS; WEIGHT OF KIDNEY
AFTER REMOVAL EIGHTEEN AND
ONE-HALF OUNCES.[1]

BY

W. L. BURRAGE, M.D.,
Boston.

THIS case is reported because it shows absence of symptoms
(excepting one attack of pain in the region of the kidney one
year previously) until a few months before the time when the
general health was seriously impaired. Then the symptoms were
those of cystitis alone.

The case also shows how the kidney, converted into a very
large sac containing thick pus and shreds of broken down tis-
sue, was successfully drained for many months through the ureter.

And finally it demonstrates that the lower ureter, enlarged and
indurated by infective inflammation from the kidney, may regain
its normal size and consistency within two weeks after the source
of infection has been removed, therefore doing away with the
necessity for removing the entire ureter in similar cases.

Miss C. A. B., 44 years old, was seen for the first time with
Dr. C. E. Holton, of Bernardston, Mass., January 30, 1903. The
patient was a teacher by profession. One grandmother and one
grandfather died of phthisis: mother and father of heart disease.
One brother and one sister strong and well: always well up to a
year ago, when she had severe pain in the region of the right kid-
ney, and was treated for renal colic with relief in a short time.

Catamenia regular, of five to seven days' duration, rather pro-
fuse, some discomfort the first day. Spent last summer abroad
on a pleasure trip. Was well and of normal weight, 112½ pounds.
The latter part of September, 1902, she began to have frequency
of micturition and in October dysuria. Went to New Jersey in
October and there suffered from frequent and painful micturition.
Returned to Massachusetts the end of November. At that time
micturition was every hour and a half by day and once or twice
at night. Urine cloudy; not bloody at any time. In December
the frequency increased. Urine at times cloudy and at others
clear. Since December loss of strength and flesh, an evening tem-

[1]Read before the Am. Gyn. Soc., May 12th to 14th.

perature of 101° ; poor appetite ; slight pain in right groin ; slight cough ; a thick mucoid vaginal discharge ; urine at times loaded with foul pus and at others clear and free from odor.

Examination showed a well-developed, poorly nourished woman of above the average height, dark complexion, hair tinged with gray, color of skin a brownish yellow, pulse small and wiry. Lungs negative. The right side of the thin-walled abdomen was occupied by a large kidney-shaped mass extending two fingers' breadth below the level of the umbilicus and upward to the edge of the ribs. The mass filled the right flank, was hard, non-sensitive on deep pressure, and not movable. The edge of the liver slightly below its normal situation could be palpated distinctly.

The left kidney, twice the normal size, was displaced so that its upper pole came below the edge of the ribs ; it was not sensitive to pressure.

The right ureter, indurated, half a centimetre in diameter by estimate, and slightly tender, could be distinctly palpated in its vaginal course. Left ureter not to be felt. Uterus large and well placed, os patulous and emitting a glairy mucoid discharge. Ovarian regions negative. Cystoscopy with a cystoscope showed the urethra slightly reddened, bladder walls ulcerated in patches about the posterior and inferior zones. Ureters not catheterized because of danger of carrying infection from the bladder.

Smears were made from pus on the bladder wall and submitted with a specimen of urine to Dr. Henry J. Perry, Assistant in Bacteriology in the Harvard Medical School. He reported that he found one or two tubercle bacilli. After inoculating guinea pigs with the urinary sediment characteristic lesions of tuberculosis developed in the guinea pigs and tubercle bacilli were found in the lesions. Four guinea pigs were inoculated with two different specimens of urine and positive results were obtained in all four.

February third the patient had severe pain in the tumor followed by a temperature of 105° and a diminution in the amount of urine passed. In five hours the temperature had fallen to 101° and there was passed by the urethra a plug of tissue the size of a two-grain capsule with a large quantity of foul pus.

The patient entered St. Elizabeth's Hospital February 5, and was prepared for operation. The urine at entrance presented the following characteristics : Pale ; cloudy ; strongly acid ; specific gravity 1018 ; albumin one-half per cent. ; urea 11.22 grammes ;

sugar absent; sediment large in amount; made up of pus, and bladder, and granular and fatty renal epithelium. Under the influence of large draughts of water the 24-hour amount of urine increased in two days to 48 ounces. February 9th the amount was 35 ounces, the urine was smoky, strongly acid, 1022, albumin a trace, much pus in the sediment, a few bladder epithelium and one granular cast.

The patient had had no further pain or diminution in the amount of urine. The temperature was 100° in the morning and from 102° to 103° in the evening; pulse from 100 to 118.

Operation February 11th; nitrous oxide gas and ether anesthesia. Assistance by Dr. C. H. Hare. Drs. William Curtis and C. E. Holton present.

Incision in right linea semilunaris from edge of ribs nearly to Poupart's ligament. The enormous kidney presented directly under the parieties extending from the liver into the false pelvis. Edge of liver low, covering the upper pole of the kidney. Gall-bladder distended and containing no stones. Left kidney about twice normal size, of normal shape and consistency, movable so that it could be brought entirely below the edge of the ribs. Left ureter normal to feel. Appendix not found. Bowels distended with gas. The right kidney was enucleated through a longitudinal incision in the outer border of the mesocolon. The somewhat atrophied fatty capsule was opened. The upper pole of the kidney was in close apposition and adherent to the under surface of the liver. The vessels were at the upper pole (two arteries) and were ligated *en masse* with silk. The ureter left the pelvis of the kidney at about the middle portion of its inner aspect. It was about one centimetre in diameter in its upper course and cartilaginous and thickened. It was tied twice, 3 centimetres from the kidney, and cut between the ligatures and the ends touched with pure carbolic acid.

The kidney was delivered without any contamination of the peritoneum or perirenal tissues. There was very little hemorrhage. About six centimetres of the ureter were then dissected out and removed. This portion of the ureter was here about half a centimetre in diameter and intimately adherent to the vena cava. At its lower portion the ureter showed very little thickening and it seemed unwise to prolong the operation for the sake of removing more ureter as the patient's condition was not especially good. After a few oozing vessels had been ligated the abdominal wound was closed in layers without drainage.

The patient was then placed in the lithotomy position and several ounces of fetid pus drawn from the bladder and the bladder irrigated freely through a cystoscope with sterile water.

Patient put to bed in good condition. Pulse 150, of fair strength. The kidney weighed eighteen and one-half ounces before it was opened. On laying it open it appeared to be a sac containing a large quantity of thick greenish-yellow pus having a foul odor. Unfortunately no measurements of the kidney were taken before it was opened. After it was collapsed it measured six inches in length and four inches in breadth.

The report of the pathologist, Dr. T. Leary, Professor of Pathology in the Tufts College Medical School, is appended.

MISS C. A. B. ST. ELIZABETH'S HOSPITAL. DR. BURRAGE.

Specimen consists of a kidney with some peri-nephritic fat tissue attached. Organ had been laid open by a longitudinal incision to one side of center—is pale and measures 13x8x4 c.m. Contour of organ is normal. Capsule peels smoothly, revealing a slightly granular surface. Section has exposed center of organ which is occupied in great part by a series of cavities continuous with pelvis, replacing wholly the pyramids and extending into cortex, which in places measures but 2mm. in thickness. These cavities, which are separated here and there by persistent columns of Bertini, are lined by thick greenish-yellow purulent material. Cortical tissue is edematous and tough and shows a line of congestion along edges of cavities.

Ureter—amputated just below origin—is thickened (1.2 cm., external diameter), shows a central zone of opaque tissue about lumen which is lined by a layer of fibrino-purulent material.

Urine—Pale, cloudy, contains a considerable sediment made up in large part of pus cells and bladder epithelium.

Smears from urine by Loeffler show a variety of organisms including bacilli and cocci.

Cultures show abundant growth of colon bacillus and a large unknown diplococcus.

Smears stained for T. B. A total of five slides, representing approximately 15 cover-glasses, were carefully examined with negative results.

.5 c.c. of urinary sediment (centrifuge) was introduced into the subcutaneous tissue of the anterior abdominal wall of a guinea-pig with negative results at the end of five weeks.

Microscopical examination of kidney tissue from two different points show sections to be made up solely of tissue from cortex. Outer portion of cortex shows a diffuse increase of connective tissue and hyaline glomeruli are abundant. Here and there are focal collections of plasma cells in the thickened intertubular connective tissue. Tissue is limited internally by a thick layer of purulent material lying directly on a necrotic layer of kidney substance, which is deeply infiltrated with pus cells. Diffuse purulent infiltration with edema is present throughout inner portion of cortex and in places definite abscesses of irregular outline are found. So marked is the purulent infiltration of the tissue between the abscesses that outlines of tubules are made out with difficulty and when demonstrated contain pus cells in their lumina.

Examination of 200 sections develops no evidences of a tubercular process. Tubercles, diffuse epithelioid growth, focal necroses or caseation are not seen, and the line of erosion of kidney tissue shows no granulation tissue.

Sections stained for T. B. give negative results.

Hand sections of ureter from gross specimen show canal lined by vascular granulation tissue deeply infiltrated with pus. No focal tubercular process evident.

Diagnosis.—Chronic interstitial nephritis. Acute purulent pyelonephritis and ureteritis.

The gross specimen, from the even progression of the process, suggests strongly a tubercular origin for the lesions. The thickened granulation layer lining the ureter adds strength to this suggestion.

The microscopical picture shows a purulent reaction uneven in character, with focal processes (abscesses) in places, and it seems that if the lesions had been of this character from the start the picture would have been a different one. It is therefore a reasonable conclusion that the primary infection was tubercular. The present picture, however, is distinctly one of an acute purulent process and the presence of the colon bacillus in numbers furnishes the etiological factor.

The patient reacted well from the operation. The temperature remained below 100° until the fourteenth day; the pulse for a day or two was about 130 and then came down to 80. The urine averaged about 20 ounces in each 24 hours; there was very slight dysuria, and the patient was able to hold her urine for three hours at a time. There was good union in the wound and the skin stitches were removed on the seventh day. At this time the bow-

els were open and she was taking nourishment well. On February 25th, the fourteenth day, the temperature and pulse began to rise and continued up for ten days ; evening temperature 102° and pulse 120. Examination by vagina showed that the right ureter could no longer be palpated. The urine was cloudy, 1009, slightly acid, urea 14.8 grammes, albumin a slight trace, 24-hour amount 34.5 ounces. Sediment shows a diminished amount of pus, hyaline casts, a few renal and bladder epithelium. A brawny swelling of the glands in the left groin was noted and also enlargement of individual glands in the right groin to a less degree. The circumference of the left thight measured 2 c.m. more than the circumference of the right thigh ; no swelling of foot or ankle. Pain in left groin. Lungs negative. No exudate in pelvis or about wound. Left kidney by palpation as before operation.

March 7th the temperature had declined to normal and remained normal after this. The enlargement of the glands in the left groin had markedly diminished although individual glands could be distinguished. Left thigh still slightly larger than right thigh. No pain in thigh or limitation of motion. Patient sitting up, urine about 35 ounces in each 24 hours, urea 20.3 grammes. Occasional irrigation of bladder. Patient is taking uriseptin.

March 13th the general strength was so far improved that cystoscopy was performed. An ulcerated patch 2 c.m. by 1 c.m. and partly covered by a slough was found on the posterior inferior wall of the bladder. There was slight injection of the vessels of the surrounding portions of the bladder and also of the urethra.

Instillation into the bladder of iodoform and glycerine emulsion was practised every other day until March 24th, when cystoscopy was again performed and the ulcerated patch freely cauterized with a bead of nitrate of silver on an applicator.

Very little discomfort followed this application and the patient continued to gain in flesh and strength. She was up and about her room daily ; ate and slept well, urine of good amount, 1018, albumin $^1/_{20}$ per cent., with a tendency to rather strong acidity ; sediment showed a few pus cells, bladder epithelium and a few hyaline and an occasional epithelial cast. Able to retain urine four or five hours at a time. No dysuria.

The patient was discharged to convalesce at her home April 4th, with the understanding that she is to report for cystoscopy and treatment when the general strength has been improved.

282 NEWBURY ST.

OBJECTIONS TO THE VAGINAL ROUTE IN THE TREATMENT OF ECTOPIC GESTATION.

BY

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THE treatment of ectopic pregnancy has gone through an evolution from a stage of inaction to one of prompt surgery, passing an intermediate one of electrical application. At the present time no physician would fail to recommend surgical treatment in a case of tubal pregnancy once the diagnosis is made. Herein is often found the stumbling block. Frequently the diagnosis is impossible and often a surgical operation is done for some other pelvic condition and ectopic pregnancy is found when the peritoneal cavity is reached. The failure of diagnosis is largely due to the faults of early teaching. Certain classical symptoms were given years back that have led to egregious blunders. I cannot undertake to carefully discuss these symptoms seriatim, but will refer to a few of them. Severe shock, intense pelvic pain with collapse, evidence of severe internal hemorrhage, the expulsion of uterine decidua and absence of a menstrual period are symptoms that are valuable but are found only in the clearest cases, and, therefore, taken together as a symptom-integer, are not of great value in the majority of cases. The symptoms of slight rupture of a pregnant tube, particularly in an early stage, may occur at the time of an expected menstrual epoch without previous menstrual irregularity or it may even occur before the time the flow is due. It may occur with variations up to two months' gestation without any evidence of irregularity of menstruation that differs from habitual irregularity of it in the individual patient. In tubal abortion the same remarks apply. In both of these conditions no evidence of shock need be present. In fact, in many cases there is absolutely no evidence of shock of even a mild form, but when it does occur it is typical. As to pain and collapse it may be said these symptoms are usually less than might be expected. The degree of pain is usually not so great as one might suppose. In truth any form of inflammation of the pelvic peritoneum, tubes or ovaries, even of mild character, produces fully as much pain as rupture or abortion in early tubal pregnancy and it is because of this slight degree of pain that many of

these cases are mistaken for uterine abortion. Of course the degree of collapse occurring depends upon the amount of blood loss at any one time and the size of the resulting opening in the tube, both of which are largely dependent upon the condition of pregnancy, being greatest in the most advanced cases. The intimate relation between hemorrhage and shock need not be considered here. As mentioned severe internal hemorrhage is not so liable in rupture of a tube early in pregnancy and in tubal abortion it is particularly apt to be slow and may be slight. The expulsion of a decidua will occur in nearly every ectopic pregnancy, but in quite early stages may be overlooked. Besides the time of its expulsion may be long after the pregnancy has been interrupted either by rupture or abortion. A case well illustrating this point is the following :

Mrs. B., 28 years of age, was admitted to my service in Providence Hospital, complaining of pain in the abdomen. She was married at the age of 20 years and had never been pregnant. Her menstruation began at 14 years, lasting four to five days, and at the age of 18 her periods became more profuse and painful. This condition continued up to the time of her present attack. Five months previous to operation the flow became more scanty, lasting two to three days for two periods, then followed amenorrhea, lasting for three months, or until the time of her admission to the hospital. About five weeks previous to admission she was taken ill with a considerable pain through the pelvis and was attended by a physician to the time of her admission. Shortly after this illness began, a gradually increasing tumor was noticed in the median line of the hypogastric region. There was no flow from the uterus. Vomiting had existed for three or four days. The woman was very thin and from outward casual observation had the appearance of advanced pulmonary tuberculosis. On admission she was infused with salt solution and ectopic pregnancy diagnosed. On April 30, 1902, the abdomen was opened and from a sac of fluid was removed a living fetus of about three and a half months' gestation. A right tube was ruptured from the fimbriated end for an inch toward the uterus; considerable placental tissue was present. The desperate condition of the patient caused her to be given, while on the table, two quarts of salt solution of a temperature of 118 degrees Fah. under the skin, as well as liberal quantities of strychnia, digitalin and atrophia, together with one quart of hot salt solution, containing 20 grains of carbonate of ammonia and one ounce of whiskey by rectal enema. Up to this time there had been no

metrostasis. On the third night after operation the patient passed
a typical decidua. Therefore, its expulsion sufficiently early to be
of diagnostic value is not to be expected. I have shown the unre-
liability of these classical symptoms and might illustrate it by an
abundance of case histories, but deem it unnecessary. However,
in discussing this subject, one should not lose sight of the fact that
at the time these symptoms were laid down as those of ectopic
pregnancy, the condition was seen at later periods of development
as a rule than now, and therefore such symptoms had time for
making their appearance. Ovarian cysts in the halcyon days of
Atlee were large and causing the classical symptoms then agreed
upon as belonging to them. At the present time such large ovarian
tumors except in remote rural regions are almost never seen. They
are frequently seen early and while very small, and their symptoms
are far different from the old classical ones. At the time these
symptoms of ectopic pregnancy were laid down the early cases, un-
less the hemorrhage and other symptoms were of that classical
type, were overlooked or mistaken for some other condition. In
fact, a criterion for diagnosis during or after operation was the
finding of a fetus or relative structures. Tubal abortion was
practically not considered. Pelvic hematocele was the name given
to such conditions and it was not until more experience in prompt
surgical relief, which may be said to have dated from Lawson
Tait's first operation for primary rupture, that the relation between
such accumulations of blood in the pelvic portion of the peritoneal
cavity were recognized. I would therefore suggest tubal preg-
nancy is brought to the attention of the skilled gynecologist
earlier than formerly and before the old classical symptoms appear.
In fact, the proportion of operations before rupture is rapidly in-
creasing. Hence the classical symptoms of ectopic pregnancy have
not had time to develop. These points lead to the consideration of
the relative advantages of supra- and infra-pubic routes in attack-
ing tubal pregnancy. Of course, these remarks do not refer to
cases that have gone on developing beyond six or seven months.

In the treatment of unruptured tubal pregnancy the vaginal
route should not be considered, as the tube should be removed and
this can best be done by the hypogastric incision, nor is drainage
ever needed in uncomplicated cases. In tubal abortion the hemor-
rhage is apt to be the slowest of all varieties of interrupted tubal
pregnancy and in consequence the amount escaping into the ab-
dominal portion of the peritoneal cavity is apt to be small. In this

variety also the tube must be removed if we are to judge by the appearance of specimens removed. When rupture occurs early in tubal pregnancy the amount of hemorrhage is not apt to be large and as a rule nature is offered ample time for the formation of a limiting membrane from the agglutination of the intestinal loops, omentum and adjacent structures. Therefore, the blood is confined on all sides as is the pus of a pelvic abscess. In later rupture the blood vessels of the tube, which have greatly increased in size, pour out much greater amounts of blood which deluges the peritoneal cavity. When death does not promptly follow, some of this blood becomes organized and oftentimes limited within certain space by a mild form of peritonitis as in early rupture.

In those cases of advanced ectopic pregnancy in which the fetus is living and the placenta is forming or has formed, the patient is for a considerable amount of time endangered by the liability of severe hemorrhage from violence, accident or undue exercise. The development of the gestation products may be interrupted at any time from causes other than hemorrhage. When the rupture is absolutely known to be extra peritoneal and treatment is addressed before the pregnancy has advanced to the later months of gestation the condition is a very different one inasmuch as the peritoneal cavity is in no way involved. Really a case of ectopic pregnancy at any stage may be considered a critical condition regarding the woman's safety, and its almost immediate removal with but few exceptions is demanded. In advanced cases the abdominal route alone would be considered by a majority of surgeons.

In a paper entitled "The Vaginal Route in Operation for Ruptured Tubal Pregnancy," presented to the Section on Obstetrics and Diseases of Women at the forty-eighth annual meeting of the American Medical Association at Philadelphia, June 1-4, 1897 (*Journal Am. Med. Assoc.*, 1897, xxix, 1294-6), I reported six cases successfully treated by that route. I was much pleased by it and wrote as follows:

"It is not the purpose of this paper to deal extensively with the general subject of ruptured tubal pregnancy, but to mention particularly the variety best operated on through the vagina. It is that special variety in which the hemorrhage has not been the most severe, has been stopped by the outer pressure of the lost blood and in which the omentum, either alone or with other structures, has formed a barrier to its progress upward into the abdominal cavity, that we think can be best operated for through the vagina. It manifestly would not be advisable to select the vaginal route to control hemorrhage from an ovarian artery, or to remove from the

abdominal cavity a large amount of free blood. But for those cases in which hemorrhage has stopped and the free blood has remained in the pelvis and is retained there by a petition from nature, no other route is as safe, quick and efficient as the incision through the roof of the vagina behind the cervix. While this is not the only variety of ectopic pregnancy in which this route is satisfactory, we wish to limit our remarks to it.

"The difficulty concerning this method of operation is in differentiating the cases to which the vaginal route is applicable from others that demand abdominal section. We must be quite certain the loose blood is in the pelvis only. Of this we can never be absolutely certain, and for that reason we should be prepared for abdominal section in all cases of diagnosed ruptured tubal pregnancy that are to be attacked through the vagina. Lest valuable time be lost by attempting the vaginal operation first, in cases requiring laparotomy, considerable care is necessary in the physical examination of the cases. A careful examination through the abdominal walls is not sufficient. Vaginal and rectal explorations are also necessary. By all these methods we can be very certain as to whether a complete operation through the vagina can be made. And yet, in our last case of ruptured tubal pregnancy we made the mistake, and had the chagrin of being unable to remove the larger part of blood through the bulging cul-de-sac of Douglas, and had to do a section above. Kelly has called attention to the absence of hemorrhage during and after the vaginal operation. He has also invited us to notice that removal of pelvic viscera is not so common in the vaginal as in the abdominal operation for ruptured tubal pregnancy. This may or may not be advantageous. It is quite possible that Fallopian tubes that have produced tubal pregnancy and have ruptured, may be of future benefit to the patient. *Per contra,* may not their retention be a source of danger to the life of the individual, either of repeated tubal pregnancy or of sufficient diseased condition to cause future prolonged misery of that life? This matter is still *sub judice.* On the whole, the writer feels that it is better to favor the course of leaving as much of the pelvic organs as possible, and to allow these organs an opportunity to be returned to a functionating condition.

"Nature sometimes does wonderful things in this direction and we should allow her the necessary opportunities. We can feel sure the tube has recently been permeable else it could not have been pregnant. The writer has done six cases by the vaginal route, all of which have promptly recovered, and in none of them has any

severe pelvic trouble followed. We should also bear in mind that many of these patients are in a condition so bad that they stand mutilation very badly, and therefore should not be made to bear any traumatism that can possibly be avoided."

The conclusions reached in that paper were:

"1. That the vaginal route is preferable for operation for ruptured tubal pregnancy when the hemorrhage has ceased or is slow, the escaped blood limited to the pelvic excavation, and especially if a limiting diaphragm has formed above it.

"2. That the vaginal route is freer from shock, is less liable to permit infection and furnishes better drainage.

"3. That there is less liability to the removal of the adnexa then when the abdomen is opened.

"4. That the period of convalescence is shorter and devoid of many of the usual complications of abdominal section."

Since that paper was written I have had four fatal cases in which I am confident the vaginal incision had a potent relation to the result. Two of them were vaginal incisions with the removal of clots, with gauze drainage and death from secondary hemorrhage at ten to thirteen days respectively. In another death followed by five days, a vaginal incision and an immediate removal through an abdominal incision of a fifteen weeks' fetus, placenta and ruptured tube. The patient died of exhaustion. When the vaginal incision was made a large amount of blood was expelled and from its appearance I was led to suspect fresh hemorrhage was occurring. The cavity was immediately packed with gauze and abdominal section made. It was discovered that rapid hemorrhage by the side of the gauze was occurring and that a large amount of blood was loose in the peritoneal cavity. Stimulation including the hypodermic infusion of salt solution was immediately employed and the operation rapidly completed. In another case the four months' fetus and a large amount of blood clots with considerable pus had been removed through the posterior vaginal fornix when profuse hemorrhage began and in attempting to temporarily control the blood loss a large fluctuating mass in the hypogastrium was noticed to suddenly collapse. The abdomen was promptly opened and the hemorrhage controlled. A large amount of pus was sponged from the peritoneal cavity, and two ruptured tubes, one from pus and the other from blood, were removed. The patient died from shock twenty-six hours later.

The first two cases demonstrate the possibility of secondary hemorrhage for at least two weeks after vaginal incision for this condition, and emphasize the advisability of tying the severed ves-

sels. The two other cases illustrate the fatal handicap of delay incident to vaginal incision when the abdomen is to be opened, the liability to excite hemorrhage by removing blood clots through it and the impracticability of attempting under such conditions to control such hemorrhage and that produced by preparation for operation.

These cases have led me to change my opinion regarding this route and to recommend that in all cases of ectopic pregnancy, the incision for the supra-pubic route rather than by the vaginal be made. If broad ligament pregnancy could be recognized before operation I would be disposed to except it from this rule, but as it is practically never discovered until the operation is going on it does not deserve special consideration.

The vaginal route is unreliable for salpingectomy in tubal pregnancy as it is more difficult and requires more time than by the abdominal route. The large number of cases of repeated ectopic pregnancy leads me to consider removal of a ruptured tube as advisable whenever possible. My experience in conservation of the appendages in ectopic pregnancy have forced me to better regard removal of the ruptured tube at a first rather than a second or third laparotomy.

My reasons for preferring the abdominal route to the vaginal in every operation for tubal pregnancy are:

1. The field of hemorrhage can be more quickly reached by this route, taking into consideration the relative amount of time consumed in cleansing the two routes under anesthesia.

2. The condition can be the more readily treated and the ligation of blood vessels more readily and certainly performed.

3. The danger from secondary hemorrhage in ectopic pregnancy is markedly less when ligation is practiced than when removal of blood clots alone is practiced.

4. Any other important pathological lesion requiring attention in suitable cases may be treated at the same sitting.

5. The shock, as a rule, will be less than if the vaginal incision and abdominal incision are both made.

6. The tube can be more readily removed than by the vaginal route.

7. The abdominal route is applicable to all stages of the pregnancy, while the vaginal cannot be employed for the later stages.

8. The vaginal incision has no place in the treatment of unruptured tubal pregnancy, while the abdominal incision is the route *par excellence.*

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CONCERNING THE NATURE OF THE SMALL CYSTS FREQUENTLY FOUND IN THE PERITONEUM COVERING THE FALLOPIAN TUBES.

BY

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(With Two Illustrations.)

THE frequency with which small cysts are met with in the peritoneal coat of the Fallopian tube must be familiar to those who work in gynecology and pathology. They are practically always concomitant with neoplasms of the generative organs, or the more serious inflammatory diseases of the tube. They seem to be found most frequently with myoma of the uterus and salpingitis. Because of their benignity and their small size they are themselves incapable of producing any clinical symptoms.

The hydatid of Morgagni and those cysts arising from the embryonal structures of the Wolffian body and duct, together with Müller's or Gärtner's duct, are purposely excluded from this article because they are distinctively of a different type. Such cysts are larger, have a definite location, and are lined with a columnar epithelium, at times ciliated, at times non-ciliated.

Literature containing detailed descriptions of these small cysts is meagre. Fabricius'[1] study of cysts from Chrobak's clinic in Vienna led him to the belief that these cysts were quite alike histologically and were in the peritoneum, but he does not state the probable cause of their origin. Stoltz[2] favors the idea that their origin is due to infolding of the peritoneum. Zedel[3] believes that the cysts can be formed by apposition of two layers of the peritoneum, and describes a cyst found at the fimbriated end of the Fallopian tube due to adhesions between peritoneal surfaces. The inner surface of this cyst was lined with endothelial-like cells. Petit[4] quotes Pozzi as saying that the cysts are originally located in the broad ligament and travel up to the serous membrane covering the tube. Petit[4] believes that they originate from the mesothelium of the peritoneum. In one of his cysts he claimed to have found a communication with the exterior, meaning, no doubt, the peritoneal cavity. He is convinced that they are due to infold-

ings of the peritoneum taking on cyst formation, probably as the result of inflammation. Delafield and Prudden[5] state that cysts with thin walls are often seen in the peritoneal coat of the Fallopian tube. They are believed to be of embryonal origin. The American Text-book of Pathology[6] states that Serous and Lymphatic Cystomata are found beneath the peritoneum and mesosalpinx. In Montgomery's Text-book on Gynecology[7] Sanger speaks of lymphangiectasia and lymphangiectatic cysts of the Fallopian tube.

As regards naked eye appearances these cysts are occasionally single ; more often, however, they are multiple. They vary in size from those which are invisible to the unaided eye to those which

Fig. 1. Shows the macroscopical appearance of these cysts. The ratio of proportion between the size of the cysts and the size of the tube is quite accurate. The ovary is seen sectioned, which was not done for any purpose of illustration.

are four or more millimeters in diameter. Their location is most often on the anterior and upper surface of the tube. Still, they are not infrequently seen in other locations. The peritoneum covering the ampulla of the tube contains them most frequently. They are spherical or lenticular in shape, distended with a clear or opalescent fluid, and, in tubes without marked perisalpingitis, can be moved freely over the musculature of the tube with the peritoneum. They are variously regarded as springing from congenital anlage, derived from the existing lymphatics, or due to peritoneal inclusions.

In a series of six cases in which eleven cysts were examined, the histological appearance was identical. It will therefore suf-

fice to describe one cyst in detail, and give the transcript from the pathological record to show the gross appearance.

Transcript from the record in laboratory of specimen marked 58-85. The left tube is ten centimeters long, of normal size,

FIG. 2. In the lower right hand corner is seen a beginning cyst which is described in the article. The depression on the surface was produced in the hardening of the specimen. The surface of the larger cyst shows the same depression. The outer lighter-colored layer shows the peritoneum. Next to it, and a shade darker, is the cyst wall with its lining of low flat cells, a trifle more pictorial than real, as double and sometimes triple rows are seen in certain places, especially where proliferating. On right and left of the cyst are diverticula which seem to insinuate themselves in all directions in the peritoneum. The dark spots in the cyst contents are hyaline masses.

averaging in diameter three millimeters at the proximal and five millimeters at the distal portion. On section it is normal in appearance. On the anterior surface of the tube six centimeters

from the cornu of the uterus is a cyst one and one-half millimeters in diameter.   This cyst is freely movable with the peritoneum, is not attached to the musculature of the tube, and is filled with a slightly opalescent fluid.   The parovarium can be distinctly seen in the broad ligament, and the cyst appears to be entirely independent of it.   Just internal to the cyst described is a second cyst minute in size, just on the border of visibility, containing a clear fluid.   There is a cyst of the hydatid of Morgagni on the same side, but this is situated three centimeters from the cyst on the tube and has no connection with it.   The right tube is eight centimeters in length and of the same calibre as the other tube.   The walls and mucous membrane are normal.   On the anterior surface of the tube, five and one-half centimeters from the cornu of the uterus, is a small cyst similar in appearance to the one described on the other side.   It is attached to the peritoneum, but not to the wall of the tube, and is partly surrounded within a radius of one-half a centimeter by five other cysts which are about the size of submiliary tubercles, and which lie between the main cyst and the cornu of the uterus.   As on the other side, there is no connection between the cysts and the parovarium, or a hydatid of Morgagni which is also present on this side.

Paraffine serial sections were made of all the cysts examined. After staining with hematoxylin and eosin the slides showed microscopically the following :

A few sections just before reaching the cyst wall almost invariably showed numerous capillaries filled with blood and free blood lying in the lymph spaces.   Three small cysts of microscopic size were found in the specimens, and were of particular interest in that they seemed to disprove the infolding theory as the area of peritoneum covering them bulged, and in no place was an infolding or even a depression suggested.   One of these cysts showed what appeared to be a canal running down to a small engorged blood vessel giving the appearance as if the perivascular lymph space had become blocked at this point.   Another, a trifle larger than the one just described, showed the ovoid cells in the center undergoing degenerative change, the cell débris going to make up the cyst contents.   The sections which led to more matured cysts showed the pericystic hemorrhagic area already referred to, and a distinct cyst wall lying in the peritoneal coat.   These cysts are surrounded by a layer of peritoneum which is distinct from the cyst wall.   The cyst wall, which is thicker on the tubal than on the peritoneal side, is made up of densely packed cells with long

narrow nuclei. It seems to be made up entirely of these connective tissue cells. Muscle cells are not demonstrable in the wall by Van Giesen's method. Weigert's stain did not show the presence of elastic tissue. The lining of the cyst is the most distinctive feature. The lining cells are low, flat and ovoid with a very small amount of protoplasm surrounding the very narrow ovoid nuclei. The nucleus almost fills each cell, giving it very much the appearance of the endothelial cells lining a blood or lymph vessel. In no instance was the cell lining otherwise. The lining cells were often seen in the process of proliferation and disintegration. In the latter case they first appeared swollen, then became large and round, the nucleus was poorly stained, the protoplasm less pink, and, finally the cell was desquamated into the cyst contents. The cyst contents for the most part stain blue, an occasional red area being seen. The bluish staining suggests that mucus is probably present in the fluid portion of the cyst contents while cell débris, and an occasional hyaline mass, make up the rest of it.

This study allows us to quite conclusively disprove or affirm certain statements as to the origin of these cysts held by some of the writers already quoted.

That the cysts are due to peritoneal infoldings of mesothelial inclusions, as stated by Stoltz and Petit is not probable, as the smaller cysts just forming showed a distinct covering of peritoneum which bulged and was not depressed on the surface looking toward the abdominal cavity. The tendency of the peritoneum in these congested and inflamed tubes is to bulge and not to retract. We can see, however, in theory at least, how localized areas of the peritoneum might be drawn toward the musculature of the tube by the contraction of cicatricial tissue resulting from chronic inflammation in the tube. This in reality could not be shown in any section and is regarded as improbable. Pozzi's theory that the cysts form in the broad ligament and move up is not well founded, as the cysts were seen forming in their final habitat, and had not moved up from the broad ligament. The proliferation of misplaced groups of mesothelial cells as the result of stimulus through the circulation, or of pressure, must be admitted to be a possible origin for some of these cysts. This study showed quite definitely, cyst formation resulting from interference with the circulation of lymph in an inflamed tube, and this seems a much more likely origin than that from misplaced mesothelial cells.

We consider that cysts with such a cell lining as is here seen could only come from three sources: namely, the mesothelium in

the peritoneum, the endothelium of a blood vessel, or the endothelium lining lymph spaces.   In regard to the first origin, an embryonal inclusion of mesothelial cells, this has already been considered in discussing Stolz's and Petit's articles.   An origin from dilated blood vessels seems unlikely on account of the absence of blood from the cyst contents, and also on account of the lack of elastic tissue in the cyst walls.   We are, therefore, forced to the conclusion, that these cysts are dilated lymph spaces, and are associated with those diseases of the tube, and neoplasms of the generative organs which are capable of interfering with the free circulation of lymph in the tubal peritoneum.

REFERENCES.

1. FABRICIUS, J.: Ueber Cysten an der Tube, am Uterus und dessen Mugebung.   Archiv. f. Gynaek., Berlin, 1895-6, L, 385-405, 1. pl.

2. STOLZ, M.—Beitrag zu den cystischen Bildungen an der Tube. Monatschr. f. Geburtsch. u. Gynaek., Berlin, 1899, X, 175-186.

3. ZEDEL, J.—Ueber Cystenbildung am Ostium abdominale der Tube. Ztschr. f. Geburtsh. u. Gynäk., Stuttg., 1894, XXVIII, 282-292.

4. PETIT, P.—Note sur la pathogenie des kystes para tubaires.   Semaine gynec., Par., 1896, 1, 65.

5. DELAFIELD AND PRUDDEN: Handbook of Pathological Anatomy and Histology.

6. American Text-book of Pathology.

7. MONTGOMERY: Text-book of Gynecology.

REPORT OF A CASE OF CYST OF THE ROUND LIGAMENT.

BY

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(With one illustration.)

THE fact that cysts of the canal of Nuck are not often observed and the fact that this happens to be the first one which, in a fairly extensive gynecological experience, has come under my notice, constitute my only excuse for reporting the present case.

Tumors of the round ligament are solid or liquid. The solid tumors include sarcoma, sarco-adenoma, cysto-fibroma, fibro-

lipoma, fibro-myoma and fibro-myo-sarcoma. The tumors with liquid contents include hematoma, abscess (Martin), and cysts.

The origin of cysts in this locality is ordinarily attributed to a persistence of the canal of Nuck. A serous cyst is formed by the gravitation of serum from the peritoneal cavity, through the open canal of Nuck in the direction of the labium majus. As the opening at the internal abdominal ring may be patent or shut off two varieties of liquid accumulation may result—the one being a reducible, the other an isolated collection of liquid, *i.e.,* a cyst. This explanation is adopted by such recent authorities as Reed, Montgomery, Baldy, Byford, Fritsch, and Labadie-Lagrave et Legueu.

Weber suggested that, as the gubernaculum of Hunter, which becomes the round ligament in the female, is at first hollow, there
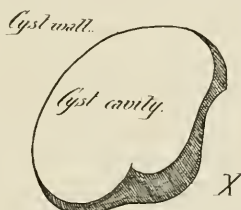
might be a persistence of a fetal condition favoring the production of a pathological growth. Prof. Duplay accepts this explanation and Pozzi leans very distinctly in this direction. On the other hand Gebhard considers this theory as antiquated and maintains that cystic tumors of the cord do not originate in the ligament itself. While accepting the older explanation that a liquid accumulation in the canal of Nuck is properly a "hydrocele muliebris" he is not willing to deny the possibility of a cyst of the substance of the cord, but would then trace its origin to fetal conditions. Bandler (in Abel's work) similarly attributes the origin of round ligament tumors to the epithelial cells of the Wolffian tubules. The inguinal band (later the round ligament) is, according to this author, superficially connected with the duct of Müller and the glands of the Wolffian body are connected with the celom epithelium. Hence some of these cells may be transplanted by the inguinal band to any point of the subsequent situation of the ligamentum teres. Lastly, Gebhard suggests the possibility that such a cyst may arise from an ectasis of the lymphatics of the round ligament.

The occasional association of these liquid collections in the inguinal region with hernia has been made use of to explain the

pathogenesis of these cysts of the round ligament. While a few observations would seem to sustain this view, the majority of cases —including the present report—point in the other direction. So that the simultaneous existence of a hernia must be regarded as an occasional coincidence.

Solid tumors of the round ligament are exceedingly rare. Duplay, after laborious research through the literature of the world, was able to find reports of only five true neoplasms of the round ligament. Cysts are also infrequent but not so rare as the solid growths. Thus Staffel was able to report four cases in his individual experience. He thinks that a fragment of peritoneum may be projected between the fibers of the round ligament and thus give rise to these cysts. Other cases are accidentally reported— as that of Leopold—in the course of discussions before medical societies.

Cysts of the canal of Nuck are observed usually in child-bearing women ranging between thirty and fifty years. The sac is lined with a single layer of pavement epithelium and may sometimes show muscular fibers. The tumor develops in contact with the round ligament which usually lies behind it. It may have a pedicle extending into the inguinal canal which may be patent and communicate with the peritoneal cavity.

The diagnosis is sometimes quite difficult because, if the cyst be tense, it may very closely simulate a solid tumor. It would probably most often be mistaken for a hernia. Tympanitic percussion-note and reducibility (excepting in strangulated or incarcerated cases) will usually exclude this condition.

If the tumor presents distinct fluctuation and dulness on percussion it may still be reducible or irreducible according to the patency or occlusion of the internal abdominal ring. The location of the tumor may assist in diagnosis; although this may vary as the cyst lies within the inguinal canal, or over the external ring, or within the labium majus.

The presence, however, of fluctuation and dulness, with an absence of pain and interference with the normal action of the bowels ought to make the diagnosis fairly easy. With active inflammation going on the diagnosis is not so easy, as under such circumstances many of these cases have been mistaken for incarcerated hernia. But even here the preliminary use of cathartics ought to readily clear up the diagnosis.

The treatment of these cases formerly consisted in puncture with the subsequent injection of irritating chemicals such as the

tincture of iodine. Inasmuch as there may be a communication at the internal abdominal ring with the general peritoneal cavity, this method of treatment is obviously associated with grave risks. In our present state of surgical science it is far safer to dissect out the cyst and to properly tie off the pedicle whether pervious or closed.

The history of my case is as follows : S. L., age nineteen, single, and stenographer by occupation. Eight months ago menstruation set in and, with the exception of the second period, which was delayed a month, she has been fairly regular. She visited me October 15, 1902, and her last menstruation dated back seven weeks. Although the girl was flat chested and did not present a very robust appearance she was in no sense an invalid and had worked steadily for three years. Her mother had recently died of tuberculosis, but the patient presented neither the subjective symptoms nor objective signs of the disease. Her appetite and digestive system were normal.

In the latter part of June, while assisting a younger sister at bathing, she remembers hurting herself in the right lower abdominal region by striking the part against the edge of the tub. She experienced a momentary sharp pain and only recalled the occurrence a month ago when she noticed a "lump" in the right inguinal region. This "lump" has not been the seat of pain but has simply annoyed her because of its presence.

On examination a tumor the size of a walnut was seen in the right inguinal region, situated exactly over the external inguinal ring. It was not attached to the skin and was movable within certain limits over the deep parts. Attempts to reduce it simply resulted in a gliding movement with slight pain. It felt hard, as though it might be an enlarged gland, but there were no lymphatic enlargements to be found elsewhere in this region. Excluding, therefore, hernia and glandular tumor, I referred her to the hospital for operation with the diagnosis of "tumor of the round ligament."

After cutting through skin and fat the upper portion of the tumor was brought to view and its cystic character at once recognized. A careful dissection was now made and the tumor, which extended quite some depth into the anterior abdominal wall, was enucleated from its bed without rupture. As it was fully exposed it was shown to lie exactly over the external inguinal ring and a narrow pedicle was traced a short distance up into the inguinal canal before being tied off and the tumor cut away. There was trifling bleeding which was controlled by a few catgut ligatures,

and the wound was united with Michel's clamps. There was no reaction and the patient was discharged a week later with primary union.

The following is the report sent by Dr. Bandler, after a careful study of the specimen :

The tumor, measuring about one inch in diameter, is a unilocular cyst. Its wall is extremely thin, at certain points increasing to two or three times this thickness, especially at one point to be designated as X. The wall is composed of fibrous connective tissue, and contains vessels of its own. Toward the inner wall this tissue has a more parallel, lamellar arrangement. The inner lining evidences no epithelium nor any distinct endothelium. At the thinner portions the inner layer of the fibrous connective tissue ceases abruptly and passes directly over into the fluid contents. At the thicker portions, especially at X, the lamellar arrangement and the fibrous connective tissue give way to a more or less stratified arrangement of round connective tissue cells like the membrana granulosa of the Graffian follicle, though no comparison with this structure is intended. At the thicker area X, cells are given off in large numbers into the fluid contents which here form a coagulated mass. In this coagulation mass are numerous large, round cells with distinct small nucleus resembling, for the sake of comparison, nucleated red blood-cells. The main portion of the cavity is filled with celloidin, as the contents of the cyst were serous in character.

In explanation of the origin of this cyst, it may be said that the choice lies between that of a fibro-cyst of the round ligament, and hydrocele muliebris (or cyst of the canal of Nuck). For the latter speak (1) the absence of epithelial elements as a lining of the cyst, (2) its unilocular form, and further (3) the fact that its pedicle extended up into the inguinal canal. An extension of the peritoneum passes into the inguinal canal, and is known as the "processus peritonei vaginalis." The union of this diverticulum with the peritoneum obliterates later on, but may remain as the canal of Nuck. If this tumor were a cyst of the canal of Nuck, it is necessary to suppose the obliteration of the point of union and the persistence of part of the peritoneal process external to this point.

The cyst, however, evidences very little in the way of a pure cyst wall, or, rather, a cyst lining, while it does, on the contrary, evidence a well defined wall of fibrous connective tissue. There is a thickening of the wall at the point X and a proliferation of the innermost layer of cells at this point. In addition there are found in the coagulation mass of this area the aforementioned

large cells which are so frequently found in the contents of certain ovarian cysts. Those cystic tumors of the round ligament whose origin is referred to displaced cells of the Wolffian body are, strictly speaking, adenomatous in their character, and evidence the distinct structural peculiarities of the Wolffian body. Inasmuch as fibromata and fibromyomata of the round ligament are referred, as to their origin, to a displacement of Wolffian body cells, with the added explanation that the glandular elements have disappeared, there is no reason why the glandular elements, as in other areas of the genital tract, may not produce an entirely cystic tumor with a final disappearance of distinctly recognized epithelium, and a persistence of fibrous tissue in the form of a cyst wall.

Because of the character of the cyst wall, because of the differentiation of the cyst wall from the surrounding tissues, because of the proliferation at the area X and because of the character of the cells in the coagulation mass at that point the diagnosis of fibrocyst of the round ligament and not hydrocele muliebris would be justified. For the present the fact that the cyst was not connected with the round ligament and the absence of adenomatous elements compels a classification under the heading hydrocele muliebris.

112 East 61st Street.

LITERATURE.

Duplay: Contrib. a l'etude des Tumeurs du Ligament Rond (Arch. Gen. de Med., March, 1882).

Fritsch: Die Krankheiten der Frauen (1900).

Labadie-Lagrave et Legen: Traité Medico-Chirurgicale de Gynécologie (1901).

Byford: Manual of Gynecology (1895).

Baldy: Am. Text-Book of Gynecology (1894).

Reed: A Text-Book of Gynecology (1901).

Montgomery: Practical Gynecology (1901).

Pozzi: Treatise on Gynecology (1894).

Von Mars: Ein Fibro-myom des rechten Mutterbandes im Leistenkanal (Mon f Gebts. und Gyn., July, 1900).

Gebhard: Pathol. Anatomie der Weib Sexual Organe (1899).

Abel-Bandler: Gynecological Pathology (1901).

PLACENTA PREVIA.[1]

BY

JOHN F. MORAN, M.D.,
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Professor of Obstetrics, Medical Department, Georgetown University; Obstetrician
to Columbia and Georgetown University Hospitals, Etc.

OF all the complications the obstetrician has to contend with
there is none that is fraught with more danger or attended with
greater anxiety than placenta previa, save perhaps, eclampsia.   Its
sudden onset, often alarming hemorrhage and consequent anemia,
shock, possible sepsis and thrombotic affection present a formida-
ble array of difficulties that even in the hands of the most skillful
has been accompanied with a high maternal and fetal mortality.
It is true that in recent years with more definite methods of treat-
ment and advances in asepsis and antisepsis the maternal death
rate has been greatly lessened, but that of the child remains un-
changed.

Placenta previa occurs according to different authorities in
1-300 to 1-1,000, and Mueller's statistics show that it is seven times
more frequent in the multipara than in the primipara.   In 5,000
births at Columbia Hospital there were sixteen cases of previa
or 1-312.5.

Various theories have been advanced as to the etiology of pla-
centa previa.   Garrigues believes that the ovum is carried down
to the lower segment of the uterus by the cilia instead of being
imbedded upon the anterior or posterior wall.   This he attributes
to the endometritis which is so common in multiparæ.   Heger in
1863 stated that too extensive formation of the serotina may
cause the placenta to project into the area of expansion of the
uterus.   Kaltenbach and Hoffmier claim to have proven by prep-
arations from early periods of pregnancy that in placenta previa
the development of the placenta takes place in the decidua reflexa
of the inferior pole of the ovum.   Berry Hart in dissenting from
this view advances the hypothesis that it can engraft itself only on
surface denuded of epithelium and this explains why it does not
engraft itself in the Fallopian tube or in some part of the uterine
cavity where the epithelium has not been removed by menstruation.

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[1] Read before the Washington Obstetrical and Gynecological Society, Feb.
6, 1903.

If then the ovum does not meet with connective tissue surface until it has passed low down in the cavity some form of placenta previa will happen. Ingleby reports two cases of abnormally low situation of the tubal orifices, in one in which placenta previa occurred twice; in the other ten times. It is seen then that the exact cause of placenta previa is still in the realm of conjecture, but from the fact, that it occurs in a very much larger percentage of multiparæ it may be fairly assumed that subinvolution and endometritis are, aside from congenital condition, at least contributing factors in its production.

Gillette in 105,935 births collected from various sources found 216 cases of placenta previa, 34 mothers lost, $15\frac{1}{3}$ per cent; 96 children, $44\frac{1}{3}$ per cent. Eighty-eight of these were of the central variety, and 20 mothers · died, 22.8 per cent; while 66 children were lost, $70\frac{1}{2}$ per cent. Marginal and partial 128, 14 maternal deaths, 11 per cent; 41 children, $31\frac{1}{2}$ per cent. None of the mothers died prior to the seventh month, which corresponds to the statistics of Mueller.

Lomer reports 101 cases operated upon by pi-polar version by nine different assistants, with a maternal mortality of seven; Behm 40 cases and no maternal deaths; Hofmier, 37 cases with one death, in all 178, 8 deaths or a maternal mortality of $4\frac{1}{2}$ per cent.

Fry reports 14 cases in which bi-polar version was used nine times; membranes ruptured and child delivered alive, one; tampon and naturally delivered, one; forceps extraction, four times, including one application to after coming head following bi-polar version. All the mothers recovered and five of the fifteen children were born alive. Of the infants lost two (twins) were not viable; one infant was at seventh month utero-gestation and four were dead when case came under observation. The death of three infants occurred during delivery.

Harris reports nine cases delivered by rapid manual dilatation and version. All the mothers recovered, but six infants perished.

Grandin and Jarmin claim to save 90 per cent of children and 98 per cent of mothers by elective accouchement forcé.

Of the sixteen cases mentioned in the statistics of Columbia Hospital there was only one maternal death and six infants lost. Thirteen were of the marginal or parietal variety and three were central. The maternal death was due to post-partum hemorrhage following version in complete previa.

The following is a brief report of five cases of my own :

CASE I.—Multipara. L. O. A. Slight hemorrhage before la-
bor. Examination revealed marginal implantation on posterior
wall. Early evacuation of amniotic fluid followed by inertia uteri.
Slight trickle of blood from vagina for several hours. Patient
showing signs of collapse, concealed hemorrhage was suspected.
The examination showed cervix dilated about two inches in dia-
meter, but soft and yielding. High forceps in utero under anes-
thesia. Immediately following birth of child, at least a quart of
clots were expressed. Sharp post-partum hemorrhage controlled
by a douche and ergot. Mother and child alive.

CASE II.—Occurred in my service at Columbia Hospital. Primi-
para. L. O. A. Marginal. Posterior wall. Rupture of mem-
branes. No hemorrhage. Labor natural. Mother and child
alive.

CASE III.—Multipara. Shoulder presentation. Admitted to
Columbia Hospital in labor with history of previous hemorrhage.
No fetal heart beat. Examination revealed partial previa de-
tached from left side, protruding into vagina and effectually com-
pressed by presenting shoulder against right side of pelvis. In-
ternal version. Mother living, child dead.

CASE IV.—Primipara, æt. 42. P.P. Centralis. Seen in con-
sultation in Virginia. Repeated hemorrhage for a month, the last
occurring several hours before I was called. The attending phy-
sicians had tamponed. Patient almost exsanguinated, pulse rapid
and weak. No fetal heart sound. Advised continuation of tam-
pon and ordered salt solution. Next morning somewhat im-
proved. Salt solution continued with good effect. I yielded to
the solicitation of the physicians and family and attempted to de-
liver, after assuring them, however, that I was afraid that she was
still unable to bear an anesthetic or withstand the shock of an
operation. Version was begun; the patient died before delivery
of child.

CASE V.—Primipara. Fifth month gestation. Referred to my
service, Georgetown University Hospital, by Dr. J. Taber Johnson.
Pulse very weak from profuse hemorrhage before admission. Ex-
amination revealed complete implantation. Tamponed and admin-
istered salt solution subcutaneously. Upon removal of tampon fol-
lowing day placenta and fetus were found in vault of the vagina.

In looking over of the literature of Cesarean section for placenta
previa, I have been able to collect sixteen cases operated upon by
thirteen different operators. Five mothers died, 31.5 per cent,

and four infants lost, 25 per cent. Eleven children were delivered alive. One of the cases was operated upon before viability (fourth month) on account of infected placenta. Seven were done after the Sanger method; eight were of the Porro variety; one unknown.

Statistics might be quoted indefinitely but those I have given will suffice to show that no fixed line of treatment can be adopted and that in the hands of different operators varying results will be obtained according to the exigencies of the case and the methods employed. We know that in lateral previa there is rarely any difficulty and labor usually terminates naturally. In the marginal, however, it becomes more dangerous and the central variety is always a matter of gravest concern. Hemorrhage and sepsis are the two most important dangers in all cases of previa and to these ruptures of the uterus as a third possible factor may be added in accouchement forcé and more particularly were attempt made to deliver the child through an insufficiently dilated cervix. Thorough asepsis, rupture of membrane, partial detachment of placenta, efficient tampon, dilatation of the cervix with Barnes' or McLean's bag and application of forceps should give good results in the majority of marginal cases. Where version is indicated and there is a possible choice between bi-polar and internal version the former will be the safer procedure for the general practitioner.

Regarding the absolute and relative indications for Cesarean section in placenta previa it is yet too soon to formulate any fixed rule for guidance; future experience alone can determine. Statistics thus far, at first glance, are not very encouraging, but it must be said, that a careful analysis of the reports of the cases show that the majority of them were in unfavorable condition from repeated hemorrhages and after other methods of intervention had failed. Of the fatal, three died within twenty-four hours of the shock; one on the fourth day, after a secondary operation and the other of septic peritonitis fifty-six hours after operation. Whether these results will be improved upon will depend upon a more thorough study of the cases during pregnancy, early recognition and prompt action while the patient is in good condition.

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REFERENCES.

GARRIGUES : Text Book of Obstetrics. 1902.
American Text Book of Obstetrics.
GILLETTE, W. J.: Jour. Amer. Med. Association, 1901, xxxvii.
FRY : Amer. Gyn. Obst. Jour., July, 1901.

TAIT: Lancet, London, Feb. 11, 1899.
HYPES and HULBERT: Amer. J. of Obst., 1892.
SLIGH, J. M.: Amer. J. of Obst., 1892.
DONOGHUE: Jour. A. M. A., Sept. 13, 1902.
ZINKE: St. Louis Med. Review, 1901, xliv.
CONROY: Boston Med. & Surg. Jour., 1902, cxlv.
DUDLEY: N. Y. Med. Jour., 1900, lxxii.
STRASSMAN: Jour. A. M. A., Dec. 20, 1902.
SCHAUTA: Interstate Med. Jour., St. Louis, 1902, ix.
EHRENFEST: Amer. Med., Phila., 1902, iii.
CARBONELLI: El Progresso Med., Torino, 1902, i, 158.

A PLEA FOR THE BETTER CARE OF WOMEN AFTER LABOR.

BY

WM. M. SPRIGGE, M.D.,
Washington, D. C.

MUCH has been written and great advances made in the care of women in the puerperal state, during the past decade. Puerperal infection with its chain of complications and large percentage of mortality has been greatly reduced since the advent of antisepsis, and still further lowered by the introduction and appreciation of asepsis. To eliminate the presence of the different species of streptococcus and staphylococcus pyogenes is the object sought by every obstetrician and surgeon. To this end we sterilize the clothing the parturient woman is to wear; the sheets; the vulva dressings and instruments; the gowns and aprons worn by accoucheur and attendants. After emptying the patient's bladder and bowels, a thorough bath is given her external genitals, thighs and buttocks are bathed with soap and water and then with an antiseptic solution, usually bichloride. The operator's hands are subjected to a thorough scrubbing with hot water and soap, then the several antiseptic solutions, alcohol, and finally sterile water; they are then ready to be incased in sterile rubber gloves. This is the care our poorest hospital patients receive, and surely our private patients can expect no less.

With the completion of labor, the usual plan of care is as follows: The perineal and vaginal lacerations "if extensive" and recognized are repaired by suturing the parts back in their normal position. The lacerations of the cervix and smaller vaginal lacerations, and many of the larger ones too, are left to nature for their restoration.

During the lying-in period, if we have been fortunate enough to escape infection, the much stretched, contused and lacerated parturient tract is given no further attention. Somewhere between the seventh and twelfth day, if the patient complains of no special discomfort, she is allowed to get up. This getting up period is not, as a rule, determined by a careful examination of the pelvic organs, but it is dependent upon the absence of subjective symptoms, the progress of involution having never been accurately determined. Many of these women suffer with subinvolution, with its accompanying uterine displacements, with endometritis, cystocele, rectocele and a hoste of other complications, all of which will require, at some future time, the skill of some gynecologist to make life worth living. It is little wonder that many women, after one experience of this kind, fear its repetition.

I have never been able to understand why one part of the parturient tract should be repaired and other lacerations left to shift for themselves—yet much of the practice of to-day is just along this line. Nor is it necessary to repair these lacerations within the hour after labor; some of the lacerations *cannot* best be repaired at this time, but after twenty-four or forty-eight hours when the edema of the parts has subsided, they can all be repaired and made to heal by primary union.

Any laceration in which large blood vessels have been torn, should be repaired at once.

Why should we leave the gaping wounds in the cervix to heal by granulation, when we know all the possible consequences which may result therefrom ?

That primary union of the perineum will take place even if it be repaired some time after labor, was demonstrated in a neglected poor patient on whom I operated 12 years ago.

She had been delivered by a midwife and because of persistent bleeding, the physician to the poor was summoned. The hemorrhage was from the perineum, the simplest way of control was by repair of the laceration; this was the second day after delivery. I had little hope of primary union of the lacerated tissues ; the parts healed, however, without complication.

Many of the vaginal lacerations are submucous, and cannot be so well detected immediately after delivery ; these if neglected often result in the most severe cases of rectocele and cystocele.

These submucous lacerations are more difficult to diagnose, but when once determined are not, as a rule, very hard to repair.

I have been much interested in a paper entitled "The Impor-

tance of a More Careful Examination and Treatment of Women After Childbirth," by Barton Cook Hirst of Philadelphia, read before the Mercer County District Medical Society, November 11, 1902. Dr. Hirst especially emphasizes the "frequency of the submucous lacerations of the muscle of the Urogenital trigonum (Waldeyer) and urges its prompt repair. The neglect of this repair, starts a pathological process which ends in cystocele. This laceration is usually worse on the left side."

In relation to the work done in the Maternity Department of the University of Pennsylvania, he states that: "In the University-Maternity for several years past all injuries to the cervix have been repaired without exception. The results have been so satisfactory that the practice will be continued."

He advises that the best time for repair of the cervix is forty-eight hours after labor, and that every woman should be subjected to three examinations after labor, viz.:

The first within forty-eight hours, to detect the injuries of childbirth.

The second, before she leaves her room, to determine the position of the uterus.

The third, at end of the puerperium—six weeks after labor, to observe the conditions of all the pelvic organs and structures; of the abdominal wall, the coccyx, and the position of the kidney."

The second examination, I believe, should be made before the patient is allowed to leave her bed; an examination at this time has been my practice for a number of years.

There is less danger, it seems to me, of pelvic inflammation, of puerperal infection, by consistently repairing all the lacerations of the cervix and vaginal tract, when done by surgically clean hands, than by leaving these conditions to take care of themselves, especially as parturient women are even more liable to infection through the vaginal lacerations than by way of the endometrium.

1015 SIXTEENTH STREET N.W.

TRANSACTIONS OF THE
CHICAGO GYNECOLOGICAL SOCIETY.

Joint Meeting with the Chicago Medical Society, held March 18, 1903, with the President, CHARLES S. BACON, M.D., in the Chair.

REMARKS ON THE DEATHS OF DRS. T. GAILLARD THOMAS AND W. E. B. DAVIS.

After calling the meeting to order, PRESIDENT BACON said: At the last meeting of the Chicago Gynecological Society I had the sad duty to perform of announcing the death of one of our Honorary Fellows of the Society, Professor Max Saenger, of Prague. Since our last meeting, we have lost another Honorary Fellow, Dr. T. Gaillard Thomas, of New York. Besides the death of Dr. Thomas, we have since our meeting last month suffered the loss of a colleague well known in our specialty, Dr. W. E. B. Davis, of Birmingham, Alabama. In the death of these two men the specialty which the members of our Society have adopted, as well as the entire profession of the country, has suffered a serious loss. Both were Southerners. Dr. Thomas was born in South Carolina and Dr. Davis in Alabama. Dr. Thomas died at the age of 71, and Dr. Davis at the age of 39. The lives of both of these men are undoubtedly familiar to you all, so that it is not necessary for me to speak of the work they have done, but simply to call your attention to the great loss we have sustained by their deaths.

The subject for the evening was a symposium on accouchement forcé.

DEFINITION OF ACCOUCHEMENT FORCÉ, AND THE INDICATIONS.

BY CHARLES S. BACON, M.D.

The subject we take up this evening is one that has only attracted a good deal of attention in the last few years, and it seems quite timely that in a joint meeting of the two societies we should consider a subject that is of interest not only to specialists, but to general practitioners.

The term accouchement forcé is an imported but very expressive term that is applied to the various methods of removing forcibly from the gravid uterus its contents, when the cervix is closed or only partially dilated. It embraces two procedures, dilatation of the cervix and the extraction of the contents of the uterus. Dilatation of the cervix may be accomplished in different ways.

It may be accomplished manually, by inserting the hand in the cervix, forcing one finger after another through the cervix until the entire hand is carried into the uterus. The cervix may also be dilated manually by the use of the thumbs or fingers of both hands, acting as retracting dilators to pull open the neck of the womb. Dilatation may also be accomplished by introducing elastic or inelastic water-bags, the cervix being dilated sufficiently to admit of them, and then making traction on the bag. This bag is properly called a metreurynter. The dilatation may be performed by means of metal dilators, of which the one most in use at present is the Bossi. Finally, dilatation may be accomplished by means of incisions, the most efficient being long, deep incisions through the cervix up to the junction of the vagina and cervix, as described first by Dührssen. After the dilatation, the extraction may be accomplished either by expression, if that is possible, or by the forceps, by perforation, and cranioclasis, or finally by version and extraction by the leg.

The term accouchement forcé was formerly used almost exclusively to denote the forcible introduction of the hand through the cervix into the uterus, grasping the foot, turning and extracting by the foot. It may be that the term, as used on our program this evening, may have carried that suggestion to some of you. Within ten or fifteen years, the great improvement in the methods of dilatation of the cervix have so increased in number that the operation is used more frequently than formerly, and the term accouchement forcé has come to be applied in a more extended sense, such as I have just defined. This extension of meaning of the term, and the extension of the operation itself, have been brought about largely by improvement in the technique of the various dilating operations, and by the introduction in those methods of the principles of aseptic surgery. As long as the operation was performed, as formerly, in the dark, without preparation, without aseptic precautions, it was a dreadful one, and was generally almost universally condemned. Fifteen or twenty years ago the operation was hardly mentioned in text-books, except to be condemned. Improvement in the methods of dilatation and the introduction of surgical methods have so enlarged the scope of the procedure that it has now come to be a well-recognized one in quite a variety of cases.

The indications and the contraindications for the use of accouchement forcé will undoubtedly be taken up by those who take part in the symposium. I will only take time to enumerate and briefly describe a few of the chief obstetric complications that call for the use of one or the other of the methods of forced delivery.

Eclampsia is undoubtedly an obstetric complication in which most often this method is used. There is no question that if the cervix is dilated at the beginning of the eclamptic attack, the uterus should be emptied. When the cervix is still closed, there is still a good deal of difference of opinion as to the procedure that should be adopted. Formerly, the method of accouchement forcé

gave such bad results that it was generally condemned in the treatment of eclampsia. Within the last ten years it has come to be generally used, and its use will be fully described this evening. I cannot refrain from adding, however, that in cases where the cervix is entirely closed, and not yet obliterated, and still hard, when the eclamptic attack begins, it is better for one, unless he is quite confident of his surgical ability, to rely upon methods of controlling the convulsions and producing elimination rather than to proceed to the surgical methods that will be described.

Other serious conditions of the mother which may demand forced delivery are severe anemia, weakness due to other organic diseases, like tuberculosis and heart disease. It is particularly in cases of severe valvular heart disease that forced delivery is called for.

Ante-partum hemorrhage is another condition that demands forced rapid delivery. That variety of ante-partum hemorrhage due to premature detachment of the normally seated placenta gives perhaps the most urgent indications for accouchement forcé. There is no question but what the uterus must be emptied as rapidly as possible in such cases. Those who have had experience in vaginal surgery in capital operations would probably prefer in these cases not only the incisions of Dührssen, but the extension of that incision through into the lower uterine segment, making what is now described as the vaginal Cesarean section. Those who are not familiar with vaginal surgery, and do not feel themselves competent to meet the emergencies that may arise in these cases would probably do better to confine themselves to rapid dilatation, perhaps by the Bossi dilator, followed by perforation and cranioclasis.

Accouchement forcé in placenta previa has been used probably ever since this complication was known, and it is still used, too often improperly, owing to the conditions that are frequently present in placenta previa. The apparent ease of dilating the cervix is apt to tempt one to continue extraction after version is completed, even to serious or fatal results to the mother. Hence it cannot be recommended to carry out accouchement forcé in its full and complete sense in those cases where the cervix is not fully dilated, or in those cases where the operator is not perfectly prepared and capable of meeting the emergencies that arise. There is this condition frequently present in placenta previa. The patient has already lost a great amount of blood, and on account of that, with the serious anemia that already exists, the loss of any additional quantity becomes a very grave matter. If the placenta previa is discovered early, before the patient has lost much blood, operative measures may be undertaken which later would be contraindicated on account of the anemic condition of the patient.

In addition to the conditions or emergencies I have mentioned, which concern the mother, there is also a condition of the fetus that may indicate rapid forced delivery. When the fetus is in great danger, as determined by a very rapid pulse or a slow pulse,

and the cervix is only slightly dilated, it may be possible to save the child by a forced rapid delivery.

In carrying out the discussion of this important subject, the Chicago Gynecological Society considers itself very fortunate in being able to present to the profession of Chicago a distinguished teacher of Brooklyn. To the members of the Chicago Gynecological Society there is no need of any more than a personal introduction of Dr. Dickinson, but to the members of the Chicago Medical Society, who may not be fully *en rapport* with the special literature of the last ten or fifteen years, it may be desirable to say what we of the special Society know of Dr. Dickinson, namely, that we consider him one of the most original, most interesting, and, therefore, one of the best obstetric teachers of to-day. We know that he has built up a large clinic in the Long Island Medical College, and teaching facilities that are surpassed by none in this country. We know, furthermore, from his writings, that he is abundantly able to discuss any obstetric question, and this one in particular. Therefore, it gives me great pleasure to introduce to you to discuss the subject of accouchement forcé in general Dr. Robert L. Dickinson, of Brooklyn, N. Y.

Papers were then read as follows:

(A)   MANUAL DILATATION; BAG DILATATION; FORCEPS VERSUS VERSION,[1]

By Dr. Robert L. Dickinson, of Brooklyn, N. Y., by invitation.

(B)   CESAREAN SECTION AND VAGINAL CESAREAN SECTION, AS MEANS OF RAPID DELIVERY,[2]

By Dr. J. Clarence Webster.

(C)   DÜHRSSEN'S INCISIONS OF THE CERVIX,[3]

By Dr. Rudolph W. Holmes.

(D)   THE USE OF THE BOSSI DILATOR,[4]

By Dr. Joseph B. De Lee.

Dr. V. J. Baccus.—I desire to report a case that came under my observation about a year ago. The woman was thirty-five years of age; multipara; had given birth to a child five years previous to this one. Two years later a high amputation of the cervix was done. At the time the patient was seen, she had been in labor for forty-eight hours, and was in an exhausted condition. Pulse ranged from 130 to 140; respiration rapid. General examination was negative, so far as heart and lungs were concerned. Measurements revealed the pelvis to be normal. Digital examination revealed a tough and unyielding ring. There was nothing but the remnants of a cervix. There was no distinction between the vaginal mucosa and the vaginal cervix proper. It was impossible to dilate the tough and unyielding ring by means of Barnes' bag. I believe this was a case where the use of any instrument

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[1]See original article, page 10.   [3]See original article, page 19.
[2]See original article, page 16.   [4]See original article, page 27.

would have caused a tear. The membranes had been ruptured by the attending physician. Being prepared for an operation, the patient was placed in the lithotomy position, and being assisted by several nurses, Dührssen's incision was made and carried out in the anterior cervical lip. But only in the anterior lip was it difficult to recognize the vaginal mucosa from the cervix. After reaching about half a centimeter beyond the vaginal vault the bladder was dissected upward. Finally, the peritoneum was recognized with difficulty, and an incision in the median line begun. It was carried out with the fingers in the uterine cavity guiding the scissors. There was excessive hemorrhage due, perhaps, to a severed vessel higher up in the lower uterine segment, which was partially controlled by an eight-inch forceps. I did not enter the peritoneal cavity, as the peritoneum was pushed up with the fingers. It being impossible to pick up the bleeding vessel, I passed a suture from the vaginal end of the cervical cavity, and stopped the hemorrhage in that way. The child was subsequently delivered by forceps, and made a good recovery.

RUDOLPH W. HOLMES, M.D.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of March 24, 1903.

DR. BALDWIN *in the Chair.*

DR. J. RIDDLE GOFFE presented two

FIBROID TUMORS

removed, through an anterior vaginal incision, from a woman twenty-one years old, married one year, nullipara, with very small vagina. One tumor was located in the anterior wall of the uterus between the bladder and uterus, the other anterior to the right horn. The first was removed by getting in between the bladder and uterus, and wrenching it out of its bed. The other was dissected out. The wounds were stitched up by successive rows of catgut. The tumors, as you see, are oblong in shape and measure 1½ by 2 inches in diameter. The patient made a prompt recovery and left the hospital on the 13th day after operation.

The second case is quite a unique specimen of parovarian cyst. Operating through the anterior vaginal incision I was able to bring this down with the ovary and tube and remove them all, intact. It illustrates beautifully the existence of a parovarian cyst entirely distinct from the ovary and tube.

The other specimen I have is one of

TUBAL PREGNANCY.

This I removed per vaginam, *i.e.*, through the anterior vaginal incision, on Sunday last, from a woman pregnant for the first time. I was able to get this out intact as you see, simply quilting off the mesosalpinx, after the tube was turned down into the vagina. When it presented in the vaginal incision, the tube was purple and angry, with large blood vessels coursing through its walls in every direction—very threatening looking. The blood vessels have drained out a good deal, and the fluid has escaped by exosmosis.

The patient had a complete history of ectopic gestation; had been under my care for two years; had no temperature at all and I watched that thing develop from day to day and week to week. When it had reached this size, I made up my mind to do an operation. This is the third day, and she says she sees no reason why she should not get up and go home, such is the simplicity of the vaginal operation.

DR. CLEMENT CLEVELAND.—I have done a good many operations by vaginal incision in the past, but I find as time goes on, in taking a retrospect of my cases, that I am doing less by that method than formerly. I believe that all those operations can be well done by the vagina; I think Dr. Goffe has shown it in those cases of his. After experience, a man certainly does become expert in working through the anterior fornix as well as through the posterior. I have several times removed fibroids from the fundus through the posterior incision; once, I believe, only, through the anterior incision, and I have removed cysts through the vagina. I think the intraligamentous cysts, particularly, can better be removed through the vaginal incision than through the abdomen.

I think the objections to the abdominal route are fast disappearing and the advantages are so markedly superior, that I believe that most men nowadays are doing this operation. In this incision, everything is before your eyes—you have the advantage of the Trendelenburg posture; moreover, I think a great many men find it advisable in doing the abdominal incision, to get rid of the appendix. I do, in every case where I can. I think you can do neater work; there is less marring of the parts, less cicatricial tissue formed and less subsequent distress to the patient. I know of cases where the vaginal incision has produced a great deal of distress in after life, from cicatricial contractions.

DR. GILL WYLIE.—I think Dr. Cleveland's remarks cover the ground very well. What made them seem very pertinent to my experience is, that I had a vaginal hysterectomy at Bellevue two months ago, and the young house surgeon who had been on duty four or five months said it was the first one he had seen. Neither my brother nor myself had done one at that time at Bellevue for two months; we rarely do that operation except in extreme cases

where we want to take everything away, as in double pyosalpinx, where there is neither tube nor ovary we want to save. Now I try to save at least one ovary in every young woman I operate on. I think we can preserve the tissues, and arrange those organs we leave, much better by abdominal than by vaginal incision. I think that is the chief reason why it should be done. I confine vaginal operative incisions largely to very fat and old women. In any cases where I can save any portion of the organ, would prefer to do the abdominal incision, not only because I can see what I am doing, but I leave them, I think, in better position. There is less adhesion that will give trouble later. Vaginal hysterectomy is very easy, when one becomes expert, and takes everything away. The appendix can be taken, but it is not always easily gotten down. Now in extreme cases, abdominal surgery is almost too easy so far as technical work is concerned. A great many men do it pretty well, but not in the best way when they have not had much experience.

A great many of these incisions are made without proper diagnosis or thought as to the kind of operation to be done. In all fibroids in women under forty, where possible, I save at least one ovary, opening from above, removing all of the body of the uterus, leaving very little of the cervix—depending upon the condition. Any later complications are easily reached from below. In any case where a woman will menstruate, I prefer to leave an ovary; if you leave the cervix below the vaginal junction with the ovary, that woman's vagina will remain in practically the same state; there will be no atrophy or shrinkage—no loss of power to secrete lubricating fluid, no shrinkage, nor hyperesthetic condition—she will be able for years to have intercourse normally. I do not attempt to take out more than one or two fibroids and leave the uterus, as I think there will nearly always be more fibroids. Where there is one in the body of the uterus, there will always be more, and it is more dangerous to do myomectomy than hysterectomy.

The operation from above is exceedingly satisfactory. I have had enough of those cases now, to say positively that this is the wise thing to do. I am certain that in any operation on a young woman where you remove completely the ovary, the result is very bad, especially if that woman is under thirty, particularly if she has never had children. It is almost certain to give very serious trouble, if the patient is not well developed, or is quite young. All our belief that removing completely the ovaries does not change her so far as acting the part of wife to a man, is wrong. It does not show in all cases, it does in many; perhaps not at once, but after a few years, especially in young women, it shows in a way very bad in married life, with certain classes of people; it is risky to leave the uterus unless you are sure it is healthy. If diseased, atrophied, hypertrophic conditions may keep up for fourteen or fifteen years after the operation, and you have to remove it, or

have it dilated and drained to prevent serious reflex action on the nervous system.

DR. LEROY BROUN.—I would like to ask Dr. Goffe whether he prefers this method of treating ectopic gestation. I think the concensus of opinion is that it is safer to operate by abdomen for ectopic gestation than by the vagina. I have seen Dr. Goffe operate by the vagina and he does it in a masterly manner and he has done a great deal in that way, especially by the anterior vaginal route. Personally I prefer to operate by the abdomen. As far as I am concerned, I think it can be much more conservative. I have heard Dr. Goffe lately advocate so strongly the vaginal route I have been trying it at all times; however, giving preference to the abdomen in cases where in doubt as to what I may come in contact with.

DR. GOFFE.—In answer to Dr. Broun I would say I don't often see—never have seen a larger tube intact than that I have shown to-night. If one can deliver such a tube as that through the anterior vaginal incision, I don't see why he could not do the same with any unruptured tube. If ruptured, it can be handled more easily. The hemorrhage in those cases comes from the tube. There is no reason why one cannot in such a condition deliver the tube into the vagina, take it off and thus control the hemorrhage. Where else would one have hemorrhage if not from the tube? There was no leaking of blood in this case; the pelvic cavity was perfectly clean. I quilted off the tube, beginning at the fimbriated end, working gradually down to the horn of the uterus. The ovary remains. In tubal pregnancy where the tube is intact, it can be removed in that way with greater benefit to the patient than by abdominal incision, fewer complications and I believe the future condition of the patient is better.

In regard to doing conservative work on the uterine appendages, I am surprised at what Dr. Wiley said. One can deal more easily with these organs through the anterior vaginal incision than through the abdominal. A woman must be pretty thin and the ligaments pretty well relaxed, to enable one to draw the appendages up through the abdominal incision. Through the vaginal incision one can turn the uterus down into the vagina and then draw the appendages after it through the incision. I take the appendages in my hand, and do such conservative work on the ovary and tube as is indicated. After that is done, they are replaced in the normal position, and the cavity is closed. If there be found serious adhesions that set free any fluid, I make a posterior incision and use a gauze drain. I don't hesitate to make both posterior and anterior incisions, but I do all ultimate work through the anterior vaginal incision. The success of this work depends almost entirely upon the freedom with which the incision is made. When I first began, I made a small incision; the more I work, the larger I make the incision, and the further I dissect off the bladder from the anterior vaginal wall. I make a transverse incision in front of the cervix and a longitudinal incision down the anterior

vaginal wall, beginning with the internal end of the urethra. This affords an opening as large as the vulva. Whatever you can do through the vulva, you can do through the incision. I don't meet with any great difficulty at all.

DR. BROUN.—Where you take off the bladder from the uterus, there is a raw peritoneal surface that you don't close, is it not possible that that would be left uncovered and form adhesions with the intestines above?

I saw a patient of yours at the Northwestern Dispensary. You had operated on her some years ago and she came into my hands afterward. I wanted to send her back to you. She had pain over the scar, and complained of dispareunia.

DR. CHURCHILL CARMALT.—At the Lying-In Hospital I saw a uterus ruptured in delivery. The patient had complained of dispareunia before pregnancy. She went to term, and ruptured the uterus through the vaginal incision, and died.

DR. DOUGAL BISSELL.—I wish to place on record my views in regard to the

RELATIONSHIP BETWEEN A TAUT CORD AROUND THE NECK OR SHOULDER AND THE OCCIPITO-POSTERIOR POSITIONS.

The case I here report is the first of a series which have come under my observation during the past two years.

Mrs. R., age 40. Multipara. Pelvic measurements normal, previous confinements without special difficulty, perineum relaxed, slight laceration existing. Date of confinement, July 29th, 1901. The first striking feature which presented itself was a marked anterior obliquity of the uterus, this obliquity increasing with each contraction of the uterus. The fetal extremities could be distinctly outlined in front and near the median line of the mother's abdomen. The back of the child was practically parallel with the back of the mother, the fetal heart sounds were far removed from the examiner's ear and could not be heard. The cervix uteri was found well dilated, and when sufficiently dilated I ruptured the bag, after which it was easy to determine positively *per vaginam* the position of the occiput, which was posterior. The head engaged at the superior strait, but would not descend and forceps were applied. The extraction of head was not difficult and the occiput was born over perineum, chin under pubes, constituting a persistent occipito posterior. The head remained in this position until the engagement of the shoulders, when it turned slightly to the left. The right shoulder was delivered anterior, the left shoulder posterior. Abdomen to the right forward, back to the left posterior. The cord was found coiled twice around neck and quite taut. The child was asphyxiated. Suspended by feet and resuscitated. Weight, 9½ pounds.

It is my opinion that a taut cord about the neck or shoulder is one of the causes of occipito-posterior positions, and that such a condition of the cord acts in causing this false position of the head,

by interfering with the first stage of normal labor, *i.e.*, flexion of the head.

Dr. Carmalt.—I should say that a cord about the neck and taut, might cause persistent occipito-posterior position, although too large a proportion (nearly 40 per cent) are at some time posterior in labor to allow that to be considered even as a factor. I can conceive of it as a cause of a small proportion of occipito-posterior positions. I have probably seen two or three hundred. I can remember one with a taut cord two days ago, where I think it was possibly in some respect a factor in maintaining that position. The moment the head descended to a strong floor, the head rotated to the front, making the cord more taut, and she was delivered normally. I can conceive of it as a strong factor in cases of persistent occipito-posterior position where the cord is very taut; I can conceive of it as being the cause of death and I think I have seen two or three deaths due to an unrecognized taut cord where the head was in the posterior position. I should not lay so much stress upon it as a cause of occipito-posterior position as upon its being a cause of the persistence of that position.

Dr. Sumner Shailer.—Three weeks ago I had an occipito-posterior position in a young primipara. I was called to the case when she was in labor and after twelve hours of labor she was delivered. As soon as I could get to the neck, the head being delivered, I found the cord wrapped tight around the neck, pulseless and practically bloodless. She was a powerful woman with an exceptionally firm perineum, which seemed to resist the delivery of the shoulders. When born the child was dead, and it must have died in utero, for the epidermis was peeling off as it does when a child has died in utero.

Dr. Goffe.—I would like to ask if a normal cord is long enough to take a turn around the child's neck, and not be tight. Would not the cord necessarily be taut in that case?

Dr. Bissell.—The length of the cord varies very much—the shortest I have met with was 9 inches, the longest 40 inches. A cord passed from the umbilicus around the neck and to the buttocks, in a child between eighth and ninth will measure between 24 and 27 inches. In the series of cases I now have under study and hope soon to report in full, I found the occiput persistently posterior twice in primiparæ and once only in multiparæ.

The paper of the evening was read by Dr. LeRoy Broun, on

THE CARE OF THE INSANE BY THE STATE OF NEW YORK.

TRANSACTIONS OF THE
NEW YORK OBSTETRICAL SOCIETY.

Meeting of April 14, 1903.

The President, Egbert H. Grandin, M.D., *in the Chair.*

REPORT OF A CASE AND SPECIMEN SHOWING SUBMUCOUS AND SUB-
SEROUS FIBROIDS OF UTERUS.

Dr. G. H. Mallett.—This uterus to which I wish to call your
attention I removed from a patient about 45 years of age, who gave
symptoms of having flowed profusely for four or five years. The
interesting feature was that she was curetted one year ago in a
very crude and imperfect manner, and yet received relief for a
whole year. The submucous fibroid which I show you necessarily
rendered it impossible to cover the cavity of the uterus with a
curette. Upon examining this patient I felt a small fibroid on the
anterior wall and another one on the fundus. When I curetted
before doing a hysterectomy I felt a polypus inside, but had no
idea of its size. After removing the uterus I opened it, and this
large submucous fibroid was seen. I thought that I curetted this
uterus thoroughly and yet many parts of the cavity had never been
touched with the instrument. To my mind this shows that the
benefit derived from the curettage is more from the irritation of
the muscular walls of the uterus than from the removal of the
endometrium. No matter how imperfectly these cases are curetted
they seem to be benefited in the way of checking hemorrhage by
the irritation of the muscular coat, which produces uterine con-
tractions.

Dr. H. N. Vineberg.—The specimen shown by Dr. Mallett re-
minds me of a case that I had last summer. In my desire to do a
conservative operation I did a curettage and then enucleated a
submucous growth. In addition there was an interstitial growth.
The operation was done with every possible precaution yet the pa-
tient developed temperature and was quite ill. As the patient was
not doing well I decided to remove the uterus. I found interstitial
myoma, which had undergone partial necrosis, projecting into the
uterine cavity. In some cases where curettage is done it inter-
feres with the supply of blood to the tumor and causes a partial
necrosis. I had such a case in the hospital last summer, the pa-
tient dying from sepsis. I first performed a conservative opera-
tion and put off the radical operation until it was too late.

Dr. Charles Jewett.—I operated in a case somewhat similar
to this on Saturday last. The uterus was two or three times
larger than the one presented. As the woman was but 33 years
of age I attempted a myomectomy in preference to the radical op-
eration. After removing all the tumors that could be found on

careful examination by myself and my assistant I finally decided that the appendages were in too bad condition to justify leaving them and did a supravaginal amputation. Another small growth was then discovered at the junction of the bladder and the uterus. After amputating the uterus the cervical stump was found so dense that this, too, was removed. The case illustrates the difficulty of making sure that all the growths have been removed in a myomectomy. Another point of interest was the ease and certainty with which pregnancy was excluded by examining for Hegar's sign through the peritoneum.

CYSTO-FIBROMA OF THE UTERUS.

Dr. Joseph Brettauer.—I removed from a patient, 34 years old, single, who has menstruated regularly since her fifteenth year, a cysto-fibroma of the uterus. She was operated upon some years ago for a fibro-adenoma of the left breast. For the past few years she has noticed a gradual increase in the size of her abdomen, which became more marked and rapid during the three months preceding the operation. Examination on October 28th showed the abdomen to be uniformly distended corresponding in size to a pregnancy at full term. With the exception of both flanks there was dulness from the symphysis to within two inches of the ensiform cartilage. There was distinct fluctuation all over the dull area. Rectal examination revealed a small cervix, but with the exception of an indistinct resistance nothing further could possibly be ascertained. The diagnosis of an ovarian cyst was made, probably malignant, judging from the rapid growth within the last few weeks. On October 28th the abdomen was opened and the mass was found to be a multilocular growth of whose lower wall was formed by a fibroid developed in the fundus of the uterus. Both appendices were normal in every respect. A typical supravaginal hysterectomy was done and the patient made a good recovery.

Dr. H. J. Boldt.—I think it is sometimes impossible to make a differential diagnosis between a fibro-cyst of the uterus and an ovarian cystoma.

When Dr. Brettauer spoke of his being surprised in his case I was reminded of an interesting instance seen by me a few days ago. A patient had her condition diagnosed as sarcoma of the ovary. A large tumor filled the entire abdomen and pelvis. She was 50 years old, possibly older. There was no question, so far as my opinion went, that the form of disease from which she suffered was sarcoma and there seemed to be no question as to its being a sarcoma of the ovary. In examining her one was able to map out the uterus, which was small, and surrounding it was a large tumor which filled the entire abdomen and pelvis. Percussion showed it to be a solid tumor and apparently some ascitic fluid was present. The liver was thought to be crowded upward beneath the diaphragm. A large incision was made. Apparently the correctness of the diagnosis of sarcoma of the ovary was confined

until I had the tumor outside the abdominal parietes. It did not strike me as being a peculiar form of tumor until then. Then I found that it was a large liver filling the entire abdominal cavity. There was also a sarcoma of the ovary which was crowded upon by the sarcomatous liver.

DR. CLEMENT CLEVELAND.—Speaking of surprises, brings to my mind an experience that I recently had. A former patient of mine, from a distant city, called upon me a few weeks ago for examination. She had had three children, the last one being born four months ago. I had confined her with the first two, one six, the other four years ago. Her present visit to me was because a diagnosis of fibroid of the uterus had been made, and an operation advised. She had been confined by a gentleman from a neighboring city four months ago, and everything had gone along normally. For the past month she was having great difficulty in evacuating the bowels, and there was a great deal of irritation and pressure upon the rectum. There was a constant desire to have a movement, but with always afterwards the feeling that there was still something within the bowel producing irritation. Even powerful cathartics and enemata did not give entire relief. This distress seemed to be increasing instead of diminishing. There was a constant feeling of pressure and irritation in the rectum. Not being able to get relief, she called a gentleman who had attended her in her late confinement. He made an examination, and made a tentative diagnosis of a fibroid back of the uterus pressing upon the rectum, and apparently producing the irritation from which she was suffering. Not feeling absolutely sure, he felt it would be wise to make an examination under an anesthetic, and this he proposed. The next day he brought with him a gentleman well known to me as a gynecologist, and the examination was made under an anesthetic, both by vagina and rectum, and a diagnosis of fibroid of the uterus, or possibly of the ovary, or a very tense cyst, was made. When she came to me, I made an examination per vaginam merely as she was excessively sensitive and nervous, and I felt perfect confidence in the ability of these two gentlemen. My diagnosis was exactly the same as theirs. She was suffering so acutely, that I advised an operation for the removal of the tumor, at an early date. Within a few days I went to her home, prepared to operate, and to remove the tumor. When the patient was thoroughly under the anesthetic I asked Dr. Bissell to prepare the vagina, and then to put a cot upon his finger, and lift the tumor through the rectum, that an enema which had been given her, and was retained, might find exit. He found a dense fecal mass as hard as a base-ball, so hard that it could not be broken up *in situ*, and which had to be delivered *en masse*. It was as smooth as a ball and its center was found to be as dense and black as bituminous coal. This mass was the tumor. The only explanation of the mistake in diagnosis, and the failure to discover it earlier when examined per rectum, was because it had undoubtedly come lower down in the rectum, where it could be felt readily at the time of proposed operation.

The joke certainly was upon my friends and myself. There was a lacerated cervix and subinvolved perineum which I repaired.

UNUSUALLY LARGE RETRO-PERITONEAL FIBROID.

DR. JOSEPH BRETTAUER.—This patient was 23 years old, single, menstruated normally since her fourteenth year. She has noticed during the last year a constant increase in the size of her abdomen, which though it caused her no actual pain, has lately produced dyspnea. On examination the abdomen was found to be enlarged to about the size of a seventh month pregnancy and was apparently filled with several masses, of which one, situated in the right hypochondrium, was freely movable and soft. The lower half of the abdomen and part of the left hypochondrium contained an apparently uniform pseudo-fluctuating tumor. Over these areas there was dullness. Bimanually the cervix was felt high up behind the symphisis. The fundus of the uterus was small and close to the right pelvic wall, its axis being nearly horizontal, the cavity two and one-half inches long. The left fornix was pushed down to within two inches of the vaginal outlet by the mass felt within the abdomen. A diagnosis of intraligamentous ovarian tumor to the left, and possibly a dermoid cyst of the right ovary was made. On opening the abdomen on April 8th it was at once seen that the reflection of the anterior parietal peritoneum was pushed up to nearly the umbilicus. After splitting the peritoneal covering, two masses which had developed from the left side of the uterus, and whose capsule was the only attachment to it, were quickly shelled out and the big cavity temporarily packed with gauze. Thus far the entire procedure was extra-peritoneal. The mass situated in the right hypochondrium was now developed and found to be a soft fibroid attached to the left horn of the uterus by a pedicle about one-half an inch in thickness. This was tied and the mass removed. Both ovaries were very large but otherwise healthy and, with the uterus, were left *in situ*. After removing the gauze there was very little hemorrhage; only a few bleeding vessels were tied. Two inches of superfluous peritoneum on either side were removed, the cavity repacked with gauze leading out through an opening into the left lateral wall of the vagina about three inches from the vulva which corresponded to the lowest point of the cavity. The peritoneum was next closed over the gauze and the abdominal incision united in the usual manner. Thus far the patient is making a very good recovery, the packings having already been removed.

DR. H. N. VINEBERG.—What was the origin of the growth?

DR. JOSEPH BRETTAUER.—I was sure the tumor originated from the uterus and, looking at it macroscopically, it appeared to be a conglomerate small fibroid with an edematous connective tissue as a basis. It was surprising to me that there were no signs of necrosis, as we often find in these quickly growing neoplasms. I think the blood supply was also established from the blood vessels

in the broad ligament secondarily. The microscopical diagnosis I will report to the Society as soon as I obtain the report from the pathologist. The uterus was small, two and a half inches, and in the posterior wall there were two bits of fibromatous nodules.

Dr. E. H. Grandin.—As I understand Dr. Brettauer the tumor was not nourished by the uterine vessels. Such errant fibroids exist, being nourished by blood vessels from the omentum, or broad ligament. A year or so ago I showed this Society photographs of a fibro-cyst attached to the fundus of the uterus by a very slender pedicle and nourished entirely by omental vessels.

DISCUSSION ON BOSSI DILATOR, PRESENTED BY DR. H. C. COE.

Dr. Chas. Jewett.—The Bossi dilator has never appealed very much to me. Objections to it are (1) The hand cannot be passed along the blades for watching the cervix during the dilatation; (2) the degree of dilating force cannot be gauged. The instrument would be a dangerous one in the hands of practitioners at large. The recent Kny-Scheerer pattern shown here to-night I am told is to be improved by the addition of a device that will make it work more easily. Dr. Coe has called my attention to a dilator devised and described by Dr. H. S. Lott, of Winston, N. C., which is very similar to the Bossi instrument. If a metal dilator is to be used I prefer the Gau, for the reason that it is free from the objections I have stated. I have modified this for my own use by omitting the ratchet clamp. In the latter instrument the extent of force is measured by the muscular sense.

Dr. J. C. Edgar.—I am not particularly in favor of either instrument for the reason that they have sharp points and you cannot tell where the points are going, possibly through the uterine wall and into the peritoneal cavity. I have had one of the original instruments for three months but have never used it. In one instance I hesitated in using the instrument because I thought I could dilate more safely with the fingers. There are a number of such instruments, all shapes and forms, and all are formed much on the lines of the Tarnier instrument, used in the Maternity Hospital in Paris for fifteen or twenty years, except that the recent ones have a powerful hand-screw as an improvement. If one could pass the hand into the vagina and watch the amount of tension used it might be a safe instrument. On the other hand, if such an instrument goes out among the members of our profession and if it is used according to the recommendation coming from the other side, where it is described as a safe and simple instrument, causing dilatation in from 22 to 25 minutes without difficulty, the women making a smooth recovery, etc., and if the general practitioners accept such statements, we then are going to have ruptures of the uterus, with knuckles of intestines coming down, etc. I am inclined to believe more in some hydrostatic dilators which work not so quickly but well.

Dr. R. A. Murray.—I have had no opportunity of using this

instrument, and, since seeing it, I cannot say that I have been pre-
possessed with it. I would greatly hesitate to introduce such an
instrument to the general practitioner, and I cannot conceive how
it can be used with safety. Instead of getting dilatation you
actually lacerate the cervix, tearing its fibers. It has been proven
time and time again, and a series of cases have been reported, in
cases of eclampsia and placenta previa, where rapid dilatation has
been necessary, that the fingers have been sufficient to dilate and
with perfect safety. Whereas, if an instrument like the one shown
to-night had been used it would commence a tear which would be
continued into the peritoneal cavity possibly by the delivery of
the child and the patient much injured. I saw a case of eclampsia
occurring in a doctor's wife. She was delivered of a very large
baby weighing 15¾ pounds. The cervix was dilated in twenty-five
minutes after the first examination and the child was delivered in
twenty-five minutes from the time the accoucheur introduced his
finger into the vagina. I resuscitated the child and weighed it.
The patient was a primipara. With such a large child it would
seem necessary to have a laceration and an immense one. If one
commenced to dilate with such an instrument the delivery of the
child would cause a deep and extensive laceration. I do not think
it is necessary to use such an instrument in these cases but we
should rely upon the fingers to get the dilatation needed.

Dr. W. S. Stone.—I have had no opportunity to use this in-
strument, although I have read most of the literature recently
written regarding it, and I must say that I have been favorably
impressed in reading such reports, especially those that are con-
tained in the German journals. I think, perhaps, one, in listening
to this discussion, would be led to think that these instruments
are dangerous and that dilatation can only be performed with
safety by the fingers. I must confess that in cases where it has
been desirable to perform rapid dilatation, especially in cases of
eclampsia, I have rarely dilated the cervix with the fingers and
delivered the child without tearing the cervix more or less, and
usually more than less. Therefore I do not think that dilatation
with the fingers is entirely devoid of danger. We hear from re-
liable men that there are some instruments worthy of trial, and I
think we ought to give them a trial. I have made up my mind
that, at the first opportunity, I will use the instrument. My own
results with dilatation with the fingers have been bad.

Dr. J. C. Edgar.—Manual dilatation is not a simple operation ;
I always look upon it as a serious operation, and only use it in
cases of emergency. Two or three men in this room know the seri-
ous accidents which have followed manual dilatation of the cer-
vix and, in two cases, there was complete rupture of the uterus.
I have always maintained that manual dilatation should never be
undertaken unless there were positive indications. It is a very
easy and simple thing to introduce four fingers into the cervix and
enter the peritoneal cavity. I do not want to be understood as de-

preciating the value of manual dilatation of the cervix by any means.

DR. H. C. COE.—I would not attempt to obtain complete dilatation with this instrument, but would only dilate sufficiently to admit two fingers. Dr. Kahn has laid stress upon the fact that the pressure is applied gradually from twenty to thirty minutes, being the time which should be employed to effect dilatation. It is true that one cannot tell just how much force is being employed, and this applies to the ordinary two-branched dilator.

I agree with Dr. Edgar in his statement regarding the danger of rapid manual dilatation. I remember a case of rupture of the uterus which occurred in practice several years ago when the fingers were used, after a preliminary hydrostatic dilatation.

DR. E. H. GRANDIN.—Cervical dilatation should only be used when there are urgent indications. Where an urgent indication does not exist one can place in a gauze tamponade which so softens the cervix that we are enabled to dilate further with the fingers. When an urgent indication does exist force should not be employed. It is not the force that is applied that makes the muscles yield, the muscles yield to the applied force. Accouchment forcé is not recognized in this country. In my experience, which has been fairly large, I have never failed to enter the uterus within forty-five minutes after seven and a half months. I can do as much with my hand as the instrument can do. In a five months' case the urgency is not so great and the fingers cannot be used. In such a case it is better to pack with gauze to soften the cervix and then within twenty-four hours, the hand may be used. To my mind such instruments could not find recognition in this country. In America the obstetricians have been trained to use the best instrument, i.e., the hand. After seven and a half months, if the gauze tampon has been introduced to cause the cervix to soften, being left there for twenty-four hours, one can always enter the uterus. One had better incise the cervix and then dilate rather than insert that instrument, because one can never tell just where the points of the instrument are, or what they are doing to the uterus. This latter is the point Dr. Jewett lays much stress upon. Further, since version should follow dilatation, there is great risk of rupturing the membranes with this instrument and then version becomes inapplicable.

MICHEL'S WOUND CLAMPS.

DR. JOSEPH BRETTAUER.—I wish to present to the Society an instrument devised by Michel for uniting wounds which have given great satisfaction in a number of cases. It obviates stitch-hole abscesses, and is superior to zinc plaster because the edges of the wound are brought into broader contact.

A NEW SUGGESTION FOR THE RELIEF AND CURE OF CYSTOCELE.

DR. J. RIDDLE GOFFE read this paper. He said that the early procedures for the relief of cystocele consisted simply in building

up a strong perineal body that should retain the prolapsed tissue
within the vulva. All the operations devised utterly failed in
grasping the true cause of the difficulty and attacking it on rational
principles. The fascia was the sustaining tissue, and if there was
a pocket or a hernia produced in it by overdistention until it had
lost its power of recovery the only permanent relief consisted in
cutting out the overdistention and atrophied area of the fascia
and bring into apposition the strong, well nourished areas that
had resisted or that had not been subjected to the destructive pres-
sure. Or, as in the Bassini operation, the two layers of distended
fascia by being lapped upon each other and firmly stitched, may
serve to do the duty of an ordinary single layer of healthy tissue.
But even when this had been done in the treatment of a cystocele
and the hernia cured, there still remained the unfortunate condi-
tion that the base of the bladder was thrown into wrinkles and
folds, producing pockets in which urine accumulated, underwent
decomposition, and brought on an unfortunate train of symptoms.
Some way then must be devised for smoothing out the base of the
bladder and doing away with the redundant tissue of bladder wall
produced by diminishing the size of the fascia. This redundant
tissue was not only from side to side but also antero-posteriorly.
There was no way of spreading out this tissue anteriorly but the
face of the uterus and broad ligaments afforded ample space and
strong support over which the excess of bladder wall could be
spread, stitching up the middle point well on the face of the uterus
and carrying the corners of the bladder well out to right and left
on the face of the broad ligaments. The anterior vaginal incision
offered every opportunity for accomplishing all these procedures.
In order to understand the thoroughness of this work he said that
it was necessary to keep in mind the method of making this in-
cision, which extended not only through the vaginal mucous mem-
brane but also through the sheath of the vagina, which was the sup-
porting fascia in this region ; the bladder was dissected from the
interior of this fascia to the extent of an inch and one-half or more
on either side of the median line. The principle of this operation
was *support from above*. The bladder was carried up and sus-
pended from the uterus and broad ligaments. In order to apply this
principle in detail in all cases of cystocele he said that it was neces-
sary to classify them in accordance with the etiology. In virgins
and nulliparous women, as a rule, the uterus, *i.e.*, its fundus, re-
mained in place. There was a hypertrophy of the supravaginal
portion of the cervix, which must be cut away, and the attachment
of the upper end of the vagina, as well as the utero-vesical attach-
ments, shifted up to a higher level. But the uterus and broad liga-
ments could be made to afford the supporting power and the proce-
dure then would consist in dissecting the vagina from the uterus
throughout the entire circumference, incising the vagina along the
anterior surface in order to afford room and facility for the work,
amputating the cervix at a point indicated to remove the hyper-
trophied tissue ; then the bladder was rotated upon its transverse

diameter, the base being stitched up on the anterior face of the
uterus and the broad ligaments at a point sufficiently high to take
up all the slack. As a rule it was best to go through the vesico-
uterine fold of the perineum into the peritoneal cavity. The object
was to carry up the prolapsed bladder to its normal level. If
there had been no hernia through the vaginal sheath there would
be no necessity for removing any of the fascia, and the operation
was completed by simply stitching the end of the vagina to the
uterine tissue and sewing up the longitudinal incision. The most
common forms of cystocele, however, were found in multipara, and,
in such cases, the disease was associated almost uniformly with
descensus and retrodisplacement of the uterus. In such cases it
was necessary, before attacking the cystocele, to restore the uterus
to its normal position; it should have sufficient support not only
to maintain that position for itself, but also to support the bladder
in its new position; he said it must be borne in mind that the higher
attachment of the bladder operated reciprocally in both lifting the
bladder to a higher level and maintaining the uterus in a normal
anteverted position. After the bladder has been slid out on the
anterior face of the broad ligaments and fastened there, all the
over-stretched sheath of the vagina must be cut away at the longi-
tudinal incision and the new edges of the fascia and mucous mem-
brane stitched with interrupted sutures. This procedure was
applicable to all cases of this class in which the condition was not
so extreme as to rob the connective tissue of its recuperative
power. By restoring the normal circulation and the normal nu-
trition of the parts the sustaining power of the connective tissue
was recuperated and a normal condition established. In cases of
complete procidentia the connective tissue, and by this he meant
the ligaments and muscular structures contained therein, had lost
all recuperative power and could no longer be relied upon to sus-
tain the uterus in its normal position. Under such conditions
hysterectomy offered the only means of cure. His method of
sustaining the vagina after hysterectomy consisted in incising the
vagina from above downwards on either side, and into the V-
shaped opening thus produced he dragged down to an extreme
degree and stitched securely the broad ligaments. As the traction
was removed the ligaments retracted and the vagina was drawn
up into the pelvis. The longitudinal incision was then made along
the anterior wall of the vagina and the overstretched fascia re-
moved as already described. To relieve the rectocele a perineor-
rhaphy must also be done. In elderly women even such radical
procedures were not sufficient and an absolute cure could only
be accomplished by the operation devised and suggested by Dr.
Edebohls, and called by him "panhysterocolpectomy." This con-
sisted in the complete removal of the uterus and appendages, to-
gether with the entire vagina. The denuded surfaces of the va-
gina and rectum were then stitched solidly together throughout
the whole extent of the denudation, thus obliterating entirely the
vaginal canal.

DR. CLEMENT CLEVELAND.—Of course we all know that most of the operations of colporrhaphy do not result in an absolute cure of the cases simply from the fact that the operation merely doubles up the mucous membrane. The secret of success, in these cases, is to get at the fascia, cut out a portion of it and bring it up sufficiently to retain the bladder in a normal position. I examined the two cases of Dr. Goffe's to-night and one especially impressed me very much. She was a large, stout woman where he restored a retro-displaced uterus. There had been also an excessive cysto-cele and a large rectocele. I examined this patient very carefully and found the uterus in a normal position. The anterior wall was as nearly normal as anyone could expect after any operation. I was very much interested in the good result he obtained. In the second case the results were not quite as good but were very satis-factory.

DR. G. G. WARD, JR.—I took great pleasure in examining the two cases referred to by Dr. Goffe, and can endorse all that Dr. Cleveland has said. In both cases I particularly noticed that the anterior wall was not shortened in any way. The bladder was suspended and seemed to be supported without the aid of the perineorrhaphy which had been done in both cases.

I think the description of the operation makes it appear to be very difficult, especially the dissecting off of the bladder from the vaginal wall, but this is not so difficult as it sounds. I have adopt-ed Dr. Goffe's method of going into the abdomen through the anterior vaginal wall in several cases. I have found it an easy thing to dissect off the bladder. I have not done this operation, but it appears to me that the difficulty would be in spreading the bladder out laterally and attaching it to the sides to the broad liga-ment.

DR. G. H. MALLETT.—It gave me pleasure to be one of the gen-tlemen to examine Dr. Goffe's cases. One of these patients was a large, stout woman, and she appeared to be in a normal condi-tion. In both women the uteri were normal in position. In one there seemed to be left a rectocele.

The operation seems to me to be a formidable one. I have seen Dr. Goffe do the operation for the cure of retroversion and I must compliment him upon his dexterity and skill in his work. I should think the attachment to the lateral ligaments would be difficult, but probably it is not after one has had some experience. Both cases were entirely satisfactory in their results. When I examined these women I was struck with the possibility of this operation for the cure of vesico-vaginal fistulæ. One could dis-sect off the whole bladder and close up the fistulæ. In the Wo-man's Hospital I have seen Dr. Emmett do repeated operations for this condition. In one case he operated twenty-two times for the one cure.

DR. H. N. VINEBERG.—If I understand the operation rightly I must say that I find nothing new about it. Mackenrodt has been doing the operation very much as Dr. Goffe has done it.

He makes a longitudinal incision, strips off the bladder and pulls it up to the fundus of the uterus and fastens it there. In some cases he stitches the bladder or peritoneum of the bladder to the fundus or to the posterior wall of the uterus. He did this operation for the cure of retroversion and called it cystopexy. The bladder was pushed up in much the same way. It was freed from its lateral attachments and sewed high up on the fundus. Mackenrodt claimed that he was able not only to cure with it a cystocele but also a retroversion and that it was not necessary to do any further operation for the cure of the displacement. I have been doing similar work for ten years and I did not look upon it as being anything new. If you wish to make the operation successful you should push the bladder away beyond the fundus of the uterus; then excise a strip from each vaginal flap, bringing the two edges together by suture to hold the bladder above the fundus. Whether the bladder will again come down or not in some cases I do not know.

DR. HENRY C. COE.—I have always been convinced that the ordinary cystocele operations were of little value. Dr. Goffe's operation is certainly a most ingenious one, but to successfully perform it requires the special skill in vaginal work which he possesses. I confess that I do not understand how the torn fascia is united after pushing up the bladder. An operation recently proposed by an Italian surgeon seems to secure much the same result as Dr. Goffe's, though it is supplemented by ventro-suspension of the uterus.

DR. JOSEPH BRETTAUER.—I should only be too glad to find that the operation described by Dr. Goffe should prove to be of value. The fascia in a case of cystocele occurring in a multiparous woman which has been down for years is exceedingly thin and a separate suture of its edges, as far as my experience goes, must be extremely difficult. The new feature of the operation is the stitching of the bladder to the broad ligament on either side and that I would not dare do if I expected pregnancy to follow, for anatomical reasons. This, I think, might be an excellent procedure in a woman at the climacteric. During the past few years I have had better results from an operation whose important feature is the using of the fundus uteri as a truss for the bladder. With the exception of one case in which I did a hurried operation on account of my inability to place the patient under an anesthetic because of a myocarditis, and in whom I had to use cocaine, I have had some 20 cases, the longest of two and a half years' duration, with good results. Menstruation and coition are not interfered with.

DR. R. H. WYLIE.—As has been said some of these cases are really hernias and the only real test of a cure is time. Unfortunately Dr. Goffe has not had sufficient time since his first operation to really test the effects of this operation. The new suggestion consists in slitting up the vagina and dissecting off the bladder from the vaginal wall and stitching it in an unusual place on the

uterus and broad ligaments. The part of the operation that is not new is the manner of holding the uterus up. The bladder naturally contracts upon itself to empty itself, and if it should be stitched so that it could not contract completely there would be pockets to hold a certain amount of residual urine.

DR. H. N. VINEBERG.—So far as pregnancy is concerned I can say that in the operation I have been doing, and I have been doing practically what Dr. Goffe has been doing without suturing the bladder directly—the bladder is pushed up above the fundus of the uterus and remains there—pregnancy has followed in 8 cases and no difficulty was experienced.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting of February 19, 1903.

The President, DR. JOHN H. GIRVIN, in the Chair.

DR. R. C. NORRIS read a paper on

THE EFFECT OF THE TOXEMIA OF PREGNANCY ON THE CARDIO-VASCULAR SYSTEM.[1]

DISCUSSION OF DR. NORRIS'S PAPER.

DR. DAVID L. EDSALL (by invitation).—When I was asked to discuss Dr. Norris's paper, I said that I should have to confine my remarks to the general subject of toxemia in pregnancy, and not particularize concerning the cardiovascular system. I have, however, been very much interested in the cases that Dr. Norris has reported, especially in the last, on which I carried out the post-mortem examination.

It seems to me that the first two cases cannot be satisfactorily accounted for, except by the view that they were due to toxemia. In the last case, I think this is much more doubtful. The manner of death and the lesion found after death, segmentation of the cardiac muscle, might both be satisfactorily accounted for by a cardiac failure dependent upon previous muscle-weakness and excited by the woman's sudden movement, without any necessary dependence upon toxemia. It is, in fact, doubtful whether seg-

[1] See original article, page 31.

mentation of the cardiac muscle is an actual cause of death. Many
pathologists think that it is not. There is some testimony to show
that the segmentation occurs only when the muscle has undergone
some alteration, this being probably of toxic nature; but it cannot
be stated that this has been demonstrated, and the conditions in
the case can, therefore, not be reasonably attributed directly to
toxemia.

The vascular changes to which Dr. Norris has referred—in
particular, the thrombosis and the emboli that occur in eclampsia
—are conditions that just now are exciting great interest, in view
of the work that has recently been done by Veit; by Schmorl and
his student, Weichardt; and, more recently, by Liepmann. These
authors claim to have demonstrated that there is in eclampsia a
poison of syncitial origin that acts by causing solution of the blood
corpuscles and by damaging the vessel walls, thus producing the
thrombi in the liver and brain that are so common in eclampsia.
It has even been claimed by two of these authors that an antitoxin
has been produced. Personally, I look with much skepticism upon
these results, as yet. It seems to me that the only thing that has
been demonstrated is that the experiments that they have carried
out have produced in animals a serum that is markedly toxic.
When, however, one is experimenting with placental tissue, which
is filled with blood, there is every reason to think that the experi-
ments would produce a hemolysin; and it is perfectly rational to
attribute their results to the hemolysin, rather than to any sup-
posed cytotoxin of syncitial origin. I cannot, as yet, feel that
they have given any evidence that there is such a specific cytotoxin,
or that they have in any sense demonstrated that an antitoxin can
be produced.

The work that I have done on the toxemias of pregnancy has
been chiefly collateral to some work on urobilinuria. Last spring,
Dr. Hirst directed my attention to the fact that Merletti had
shortly before reported that urobilinuria is extremely common in
pregnancy. Other men had made similar observations; and I
found, in a few cases at the University Maternity, that it does
occur commonly. With Dr. Fife and Dr. Weil, I undertook a
series of observations, with the primary purpose of attempting to
add to the knowledge concerning urobilinuria, chiefly because of
the importance of uribilinuria in relation to diseases of the liver,
the blood, etc. These women apparently offered unusually satis-
factory conditions for studying urobilinuria because they pre-
sented no evidences of general disease.

Urobilin is supposed to be closely related to decomposition
processes in the gastrointestinal tract. We therefore investigated
the urinary excretion of both urobilin and intestinal decomposi-
tion products, making in each a series of examinations of sixty-
four women, and investigating in each instance the urobilin, eth-
ereal sulphates, volatile fatty acids, ammonia, total nitrogen, in-
dican, phenol, and acetone. Though undertaken for another pur-

pose, the results of this study are of some interest in relation to the toxic conditions that occur in pregnancy.

In the first place, Merletti claimed that urobilinuria is practically physiological in pregnancy. With this, I do not agree. It was found in excessive amounts in only about half the cases; it therefore indicates some abnormality. It cannot, however, be of any serious importance, because it occurs so frequently. I had hoped that it might be an index of a dangerous state, and therefore, when intense, of some value in prophylaxis. This, however, did not prove to be the case. Indeed, while it was present in one case of eclampsia and in one of severe albuminuria, it was absent in two similar cases; and I believe that it is of no consequence in indicating the onset of dangerous symptoms.

Merletti also says that urobilinuria of very intense degree indicates death of the fetus. This would, I think, be a dangerous method of making such a diagnosis. An intense urobilinuria was observed by us in a series of cases of perfectly normal pregnancy, the child showing no indication of any abnormality; and in one case of fetal death, urobilinuria was absent. In another case of fetal death, to be sure, urobilinuria was present in marked degree, but urobilinuria is certainly not a good clinical sign of death of the fetus. The facts concerning urobilinuria are, therefore, wholly negative, and of interest only in this way.

The facts that we developed concerning the intestinal decomposition products are of more interest; although, as yet, not of very much importance. In the four cases that I have specially mentioned, two of eclampsia and two of severe albuminuria, there was in every instance an excretion of abnormally large amounts of intestinal decomposition products of some kind. In all four instances, it was observed that the volatile fatty acids were increased; and in all but one, some of the other decomposition products were likewise increased. These facts do not, of themselves, mean very much; but I think that it is worth while to make further studies, to see whether increase in the intestinal decomposition products may not prove to be an indication of the possible approach of danger. If they do indicate oncoming danger, I do not believe that this will mean that the toxemia must be attributed solely to disorders in the gastrointestinal tract; for I am quite convinced that the intestinal decomposition products appear in the urine in excessive amounts not only when there is gastrointestinal disturbance and the decomposition products are formed in unduly large amounts, but also when there is general disorder and the decomposition products are not properly broken down. In other words, I believe that they indicate the existence of a toxic state that may or may not be the result of gastrointestinal disorder; and it is from this standpoint alone that I should expect that they might prove to be of some value in indicating the presence of a serious toxemia in pregnancy. Even though the eclampsia of pregnancy be ultimately shown to be due to a cytotoxin, I think it

quite possible that other substances might indicate the danger of the onset of eclampsia.

There is one further fact that our studies did positively demonstrate; although it is a fact that, I am sure, did not need any further demonstration than it had already received. This is that the examination of the urine for urea as an indication of the possible onset of eclampsia or of renal disturbance is extremely unsatisfactory and unscientific. One fact that is commonly overlooked by practitioners in general is that the excretion of urea is far more dependent upon the amount of nitrogenous food that the patient takes than it is upon any other factor; and the urea excretion is of no value, unless the amount of nitrogenous food that the patient takes is known. The mere determination that there is a certain amount of urea in the urine is, therefore, of absolutely no consequence, of itself, in any kind of case; and in late pregnancy there is still another complication that makes urea estimations of no diagnostic value, even though the amount of nitrogenous food being consumed is known. This complication is the fact—which has been well established, both by common-sense and by careful metabolic investigations,—that a woman at this time normally retains nitrogen. She naturally must do so, in order to provide tissue for the fetus. As a consequence of this, a small urea excretion in late pregnancy may be due to the retention of nitrogen for the purpose of building up the tissue of the fetus; to the fact that the woman is taking very little food; or, perhaps, to the fact that excretion is poor. It is absolutely impossible, in any particular instance, to tell which is the case. That the amount of urea excreted is an utterly unsatisfactory evidence of the condition of the woman, is shown by a whole series of figures in our work. Women that were perfectly normal varied in their nitrogen excretion from 3½ to 16 grams. Expressed roughly in terms of urea, this would mean from about 7 grams up to over 30 grams. These women were on the same diet and did not vary greatly in the amount of food they took. If one uses a low urea excretion as an evidence of toxemia, he will expect danger in a whole series of cases in which it does not appear; and the contrary is also true.

Another factor in urea excretion that does not seem to be at all appreciated in the usual teaching concerning urea estimations is that the percentage excretion of urea is no indication of the actual amount of urea that is being passed. A normal woman may, for instance, pass as little as 8 or 10 ounces of urine, or she may pass seven or eight times as much as that. It is perfectly evident that one knows nothing about the amount of urea excreted by merely determining the percentage excretion. The only way in which the urea excretion can be actually determined is by finding the amount that is passed in twenty-four hours. Even if this is done, however, apparent abnormalities may be due to such a variety of causes, both physiological and pathological, that it is impossible to draw any conclusion as to the patient's condition.

Dr. B. C. Hirst.—This subject interests me very greatly. I

would be very thankful to know on just what we could depend as a guide for the condition of pregnant patients. Personally, I cannot depend upon the urea elimination. I have had a number of examinations made as to urea elimination in pregnant women and they vary, and really do not tell me anything. I have had patients in the University Maternity with perfectly normal urea elimination and yet who have been in a bad condition from toxemia. I have had on the contrary patients with faulty urea elimination and in perfect health. A few months ago I had a patient in the hospital who had eclampsia when she came in. She recovered and the baby lived, but during her three or four weeks in the hospital after her recovery she only had one-quarter of one per cent. of urea and apparently was in perfect health. The other woman had more than two per cent. of urea, was toxemic and became eclamptic. We have still something very important to learn in this field. It doesn't appear that the urobilin in the urine is going to help us much. I think the most helpful thing is the observation of Dr. Edsall in regard to the excessive products of intestinal decomposition in the urea of toxemic patients. Our present position seems to me very unsatisfactory. As Dr. Norris suggested, the condition must be judged by the woman's general health in connection with the examination of the urine. Personally, I find that the presence of albumin helps me as much as anything else. Its presence is the first indication of something wrong. I do not think that any single symptom of the urinary examination can be depended upon. I do not know of any other one field in this branch of medicine which needs investigation so badly as this.

Dr. George M. Boyd.—I feel, personally, greatly indebted to Dr. Norris for the valuable paper, and have also enjoyed very much Dr. Edsall's formal discussion of it. I feel that it will make me more careful in studying the pulse of pregnant patients, particularly in patients in whom we may suspect or fear toxemia. I have now under my care a patient with rapid pulse which I cannot satisfactorily explain. I shall, after this evening's discussion, more closely study that patient's pulse.

I think we have all felt that pernicious vomiting was a phase of toxemia. I am also very glad to have heard the remarks of Dr. Edsall in regard to urea. I believe that too much stress is laid upon the value of the amount of urea in estimating the condition of the patient.

Dr. Coles.—The importance, I think, of the character of the pulse should not be neglected. I think as Dr. Norris has said, that it is almost as important as the study of the urine. The last case I cannot exactly put into this series of cases of toxemia and even in the first case it is hard to say whether it is one of toxemia affecting the cardiac apparatus.

The remarks of Dr. Edsall rather gave us a set back on our urea tests. I have studied the urine of a large number of cases and have always found it reliable. An observation of the urea excretion assists in the detection of the toxic symptoms early in the

disease, and when they are detected, in the majority of cases they can be cured. Calomel in doses of 1-10 to ¼ gr. three times a day is the principal remedy I have employed after lessening the diet. It will bring up the total amount of solids in the urine more quickly than any other drug. The majority of my cases have been treated by this and with diet and hygienic measures. After toxemia has well developed more active measures have to be used.

Dr. Norton Downs.—The question of urea elimination during pregnancy is one to which I have given some thought. I think that we scarcely know what the normal elimination of urea in pregnancy is. I have been to some pains to find out what it would be, but have not been able to determine. Therefore, if we do not know how much urea is to be eliminated during pregnancy, of what advantage is it to us to know that a patient is passing so much and so much urea during her pregnancy.

The toxemia which exists during pregnancy I think is well understood and perhaps accounts for a good many symptoms, for example, the nausea and vomiting of pregnancy. How to eliminate that, or what it depends upon, I am sure I am at a loss to understand, except it is some toxic poisoning which affects the nervous system as in scarlet fever, smallpox, etc. We do know that the poisoning of pregnancy simulates that which accompanies the toxic or specific poisoning in other acute diseases, as for example, scarlet fever, smallpox or conditions similar. I do not think there is much which I can suggest further except that the specific poisoning affects the nervous organism and therefore is accountable for the symptoms which we frequently see, as in eclampsia, etc. I believe the condition is due to some particular poison of this sort.

Dr. William R. Nicholson.—It seems to me that the question of the value has been definitely settled by what Dr. Edsall has said, and all of us have been realizing it more or less in the past. As Dr. Hirst says, it is rather trying not to know what to put your faith in in one given case. Dr. Norris will remember a case in which the woman had had no albumin, was in absolutely good health, and who suddenly had an attack of eclampsia. It was learned afterwards that she had had some symptoms to which she paid no attention and had also a slight amount of increase in edema, but nothing that seemed to her family or herself to amount to anything. I had seen her every two weeks, and this all came on after my last visit. A low specific gravity, not above 1.012, was the only thing that could have raised my suspicions. I would like to ask Drs. Edsall and Norris their opinion of the value of the specific gravity as an index of total solids. In the Maternity of the University there is a good opportunity for making these estimates. Many of the charity patients get better treatment than those in private practice. I would like to know whether a woman is going to develop eclampsia like a thunder clap from Heaven, or whether her pregnancy will continue uninterrupted.

Dr. Norris closes.—Of the cases reported in my paper, in the

first, the only post-mortem explanation of death was toxemia and
the only clinical evidence of toxemia that the patient presented was
interference with the cardiac mechanism. In the second case there
seemed clearly a toxic influence upon the vagus or upon the ac-
celerator nerve of the heart. The third case was referred to not
because of any demonstrable association of toxemia and heart
failure, but because I wanted to hear from Dr. Edsall, who made
the autopsy, whether or not there could be any relationship be-
tween toxemia and this segmentation or fragmentation of the car-
diac muscles. I know nothing about that. It seemed to me that
the spaces between the muscle fibres he referred to in the autopsy
notes could readily be explained by a mechanical theory of over-
distention of the heart by the sudden strain of sitting up. I do
not feel justified in including the third case in my paper as a typ-
ical case of toxic interference with the cardiac muscle. I have
been particularly interested in what Dr. Edsall has had to say, and
in Dr. Hirst's confirmatory evidence, because I have had the same
experience with urea estimations. When I took charge of the
Preston Retreat I instituted routine examinations of the patients'
urine, which have satisfied me as quite sufficient to indicate the
excretory power of the patient, and which practically are as useful
as urea estimations. It is the practical method of estimating the
total solids excreted by noting the quantity in twenty-four hours
in ounces, multiplying by the last two numbers of the specific grav-
ity and then by one and one-tenth. The product represents the
total solids excreted and taken in relation to the patient's weight,
gives a fair index of the excretory power of the patient. It is
Haines' modification of Harser's method. A woman weighing 150
pounds should show nominally a total of urinary solids of 1,150
grains. While it is true that some patients with a low percentage
of urea will go through pregnancy without trouble, and while it
is also true that patients with a normal percentage (which we con-
sider to be about 2 per cent. for the average 24 hour excretion—
1,000 c.c. containing 20 grams of urea) may yet develop eclampsia.
it should not be forgotten that patients who do develop eclampsia,
if carefully observed during pregnancy, will show constitutional
signs of toxemia and that *usually* the examinations of the urine
will show diminished excretion of urea and total solids. That is to
say, the *majority* of women who develop toxemia will show a di-
minished quantity of urea associated with constitutional signs of
toxemia. In the exceptional cases where the woman passes a nor-
mal quantity of urea, she will show constitutional signs of intoxi-
cation and the value of her urinalysis is secondary to a study of
her general condition; but in those cases where the associated ex-
aminations are in harmony the one fortifies the other. The pres-
ence of albumin is not to be wholly disregarded. We know very
well that a trace of albumin is not a valuable index of excretory
power nor of structural kidney changes. To consider albumin
an indication of toxemia it must be present in moderate or large
amounts. The examination of a pregnant woman's urine should

include a micrscopic examination as well, and when a large quantity of albumin is noted structural changes in the kidney will usually be found. The most constant lesion in eclampsia is to be found in the kidneys, hence the necessity for critical study of the urine. The mere presence of casts is not a valuable index. Their variety and number are more important. I have come in recent years to believe that we should have first of all a careful study of the patient for constitutional signs of toxemia, particular attention being paid to the liver and to the cardio-vascular system. Next a study of the urine will serve a useful purpose. When a normal amount of urea is excreted we must not be misled into thinking that the patient is absolutely free from danger. Sometimes, in spite of that evidence, she may be retaining poisons that will go on accumulating until a toxemic storm appears. A trace of albumin should lead to microscopical examination to determine whether or not there are evidences of slight or grave structural changes in the kidneys. We cannot rely upon any one sign with safety to the patient or assurance to ourselves. It is the combination of these examinations and the careful study of the individual case from these different viewpoints that will aid the alert physician to see in many cases the outcome of the patient's toxic condition. As Dr. Edsall pointed out, we must know the quantity of nitrogen the patient is taking in, and we must know also the quantity passing to her fetus before we can know the real value of the amount eliminated. Nevertheless, if the urea elimination is found to be very low it is an indication for diminishing the nitrogen in the food if the patient shows any constitutional sign of toxemia or if the further study of the urine shows changes in kidneys. For that very reason we put such patients on a milk diet. Some of the most distinguished observers claim that if we could place all pregnant patients upon an exclusive milk diet eclampsia would be unknown.

MYOMECTOMY.

Dr. B. C. Hirst.—The first specimen is a fibromyoma attached to the right cornu of the uterus removed by myomectomy during pregnancy. It has a good deal of clinical interest and has some bearing upon urinary examinations of pregnant women. When I first saw the patient she was said to be somewhat short of eight months of pregnancy and she had developed serious systemic symptoms a few days before. She was vomiting, was irritable, her abdomen was extremely sensitive and she had evidence of some pressure symptoms of the abdominal organs. Examination of the urine showed casts and albumin. My diagnosis was that of ovarian tumor, and from the abdominal symptoms I assumed that it had been twisted on its pedicle. I recommended operation. Upon opening the abdomen there was found not an ovarian tumor, but a fibromyoma. In spite of that fact the operation was proceeded with and the growth removed. The patient did well so far as the operation was concerned, but her kidneys became steadily worse,

so that three days after operation it was necessary to subject her
to the most vigorous eliminative treatment. She received hypo-
dermoclysis every four hours and a sweating of thirty minutes
every four hours by the ordinary method we use for these nephri-
tic toxemias. Only after treatment of two days did the woman
fall in labor and delivered herself of a child, which could not
be revived. The interesting part of the case is that tumors can
be removed from the uterine wall without interrupting pregnancy.
I am convinced that if the woman had not been subjected to
the active eliminative treatment she would have gone on to term.
The result of the treatment was not successful, for at the end of a
week the woman died of uremia. The post mortem showed the
abdomen to be healthy. There was no inflammation and no ad-
hesions. It was evident that myomectomy was done successfully
in this case and could be done in others, had it not been for her
complications. There was really no pedicle at all. The tumor
sprang from a broad base on the uterine wall and it was neces-
sary to make a pedicle around the base of the tumor forming a
cuff of capsule. This was closed by mattress sutures of catgut
that controlled the hemorrhage. Only about an ounce of blood
was lost. A week later the stumps were in an absolutely satis-
factory condition.

The second specimen is that of a

UTERUS UNICORNIS

and an enormous hematosalpinx taken from a young girl with
entire absence of the vagina. There was only one uterine artery
that it was necessary to tie off.

The next specimen is that of a

DERMOID CYST WITH AN EYE

in it. It is one of the most curious errors of anatomical structure
that can be seen. Microscopic examinations will be made in order
to demonstrate its character conclusively. From macroscopical
examination there is no question as to the nature of the growth.

Finally I wish to present the

UTERINE DILATOR OF BOSSI.

It is designed for the rapid dilatation of the cervix and the hasty
delivery of the woman, more particularly in such conditions as
eclampsia. I have delivered five women in a few minutes when
the os was at the beginning absolutely undilated. I know there-
fore from personal experience that it is possible to make a rapid
delivery. The first patient was brought into the University Hos-
pital. She had had eclampsia outside, and was moribund. The
pulse was 160, and there were no fetal heart sounds. I used
the instrument experimentally and delivered the woman inside of
seven minutes of a dead baby, and she died herself some hours
after of eclampsia. The second case was that of an eclamptic pa-
tient in a bad condition and in the eighth month of pregnancy. I

delivered her with forceps after dilatation of the os in seven minutes. The baby was alive, has done well and the woman made a good recovery. It is interesting to see the effect upon the cervix of this rapid instrumental dilatation. It is what any of us might have foretold, as it is not possible to do it without injury. In this woman there was a very extensive tear on the left side lying beyond the vaginal vault into the base of the broad ligament. The question arises whether it is better to injure the cervix and secure rapid delivery rather than to persist in climacteric treatment. My own feeling has been that we ought to count upon relief of the convulsions by the eliminative treatment rather than on the conclusion of labor, but if it is practicable to deliver the woman inside of ten minutes it is worth while to consider whether our former views are justified at the present time. I am rather inclined to think it is better to effect rapid delivery if it can be done as easily as is possible by the aid of this instrument.

Dr. R. C. Norris.—I have purchased one of these instruments, but have not yet used it. It has occurred to me that there is too little pelvic curve to the instrument. I would like to ask Dr. Hirst if he finds any difficulty in adjusting it in the cervix and getting it into proper position to make a successful dilatation of the cervix, and whether the laceration so likely to follow its use may not be due to the fact that besides dilating very rapidly it grasps the cervix at an angle to the plane of the os. I have wondered to what extent the cervix can be brought down and into line with the instrument. Laceration would be likely to occur with any instrument dilating as rapidly as we wish in these grave conditions demanding speedy delivery. Whether we gain anything by this instrument over clear cut incisions which we can readily close by suture is a question to be decided by experience with it.

Dr. Hirst closes.—In answer to Dr. Norris, I have tried multiple incisions of the cervix for some time but I think this plan of instrumental delivery is easier and safer. I have always felt in making deep incisions to the vaginal vault that when we apply forceps and pull on the child's head there is no telling where the incisions are going to stop. One might open the peritoneal cavity. I have not had that happen. I think it would take more time to make the four incisions than to use this instrument and of the two plans I would prefer this one. I did not find any difficulty in applying the instrument on account of the lack of curve.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Meeting of December 19, 1902.

The Vice President, E. A. Balloch, M.D., *in the Chair.*

Dr. I. S. Stone showed a

FIBROMA OF THE OVARY.

Dr. Sprigge read a paper on the

TREATMENT OF WOMEN DURING THE PUERPERIUM.[1]

Dr. Morse.—Obstetrics does not require so much skill as strict attention to details. Few patients are so situated that strict asepsis can be practiced in private houses, but we can do very well. Results of immediate repair are not so good as when forty-eight hours have elapsed. The parts at first are swollen and are not so well coaptated. As to time of getting up each case should be a law unto itself.

More will be done for the pregnant woman by strict attention to detail from the very first.

Dr. W. S. Bowen had been much impressed with Hirst's early repair of the cervix. Llewellyn Eliot had read a paper on early repair of the cervix and had been severely criticized. He does not practice it, but if a vessel is torn it must be tied. There would certainly be greater danger of infection. Large lacerations of the cervix will frequently heal to an almost imperceptible line without operation. He repairs lacerations of the perineum. With care lacerations of the perineum can be minimized. He has not had a bad case for a long time. If necessary he makes a lateral incision on either side of the perineum and puts in silk worm gut sutures before the child is born and ties them afterwards. He gets good results.

Dr. Sothron said many tears are due to haste. Immediate repair should be practiced if there is danger of hemorrhage or infection. In twenty cases of long labor he has refrained from using forceps and in eighteen he got no tear. He thinks cut edges will heal better than the rough edges of a tear.

Dr. Stone endorsed Hirst's article. Can any amount of care

[1] See original article, page 80.

at delivery prevent all the diseased conditions of woman's genital organs? He thinks not. We are ignorant frequently of the condition of the woman before pregnancy. Retroversions can be cured after labor by a well-fitting pessary. Laceration of pelvic floor can be repaired.

Dr. Bovée said asepsis bears a close relationship to the subject of midwifery. It is difficult to correctly approximate torn edges immediately after labor because the cervix is so stretched out that the edge is very thin. If the perineum is torn, stretched out that the edge is very thin. If the perineum is torn, it should be repaired. If we preserve the perineum intact, we do not of necessity preserve the recto-vaginal septum. Laceration of the facia of the vagina, or utero-sacral ligaments takes place. If the uterus is retroverted after labor, place the patient in bed on the sides and abdomen so the uterus will fall forward.

Dr. Sprigge did not agree with Hirst that all post-puerperal diseases of women can be prevented. He did not see why the hand could not be made as clean and harmless in midwifery as in abdominal section. In some private houses the women can be made as clean as in a hospital. She is put to bed in sterile sheets and towels as perfectly as in an institution. Repair of the cervix is attended with difficulty, but it can be done and greatly reduces scar tissue. There is little danger if the hands are clean.

Meeting of January 2.

The President, G. Wyeth Cook, M. D., *in the Chair.*

Dr. Balloch presented a

PYOSALPINX.

The specimen was from a colored girl, twenty-seven years of age, not married. Her history is that of uniform good health, excepting one baby and two miscarriages, up to two weeks ago, when she was taken with fever and pain, the latter most severe in left lower quadrant of abdomen. A physician was called who made an examination, telling her that she had the grip. After ten days of illness she seemed to be getting worse and another physician was sent for. Examination at this time revealed a mass on the left side of the pelvis and a diagnosis of a pus-tube was made and the patient recommended to go to a hospital. She entered Freedmen's Hospital on December 30, 1902, and came under my observation the next day. She was having a moderate temperature and the pulse was weak and rapid. Examination showed a pyosalpinx and enlarged ovary on the left side and a firm mass behind the cervix, which was thought to be a retro-

verted uterus. She was operated on January 2, 1903. Both ova-
ries were found to be enlarged and the subjects of fibro-cystic de-
generation. The left tube contained pus. The mass behind the
cervix proved to be a fibroid low down in the posterior wall of the
uterus. The uterus and adnexa were removed.

Dr. Miller said the cause of pyosalpinx is usually the gon-
ococcus but we frequently find fibroids with inflammation of the
tubes. It is a question which produces the other. He supposed
in this case the fibroma had nothing to do with the pyosalpinx.

Dr. Bovée read the paper,

OBJECTIONS TO THE VAGINAL ROUTE IN THE TREATMENT OF ECTOPIC PREGNANCY.[1]

Dr. G. Brown Miller said that the diagnosis of extra-uterine
pregnancy could be made in the majority of the cases, and that
it depended largely upon the history. In nearly every case there
is a history of one or more periods missed, then irregular hemor-
rhage and pelvic pain. There may or may not be signs of preg-
nancy or of rupture. The pelvic examination usually shows a
mass on one side in unruptured cases, and either in the cul-de-sac
of Douglas or to one side in cases where rupture has occurred.
He cited a case who was operated upon by Dr. Howard A. Kelly
two years ago. She had remained well until a few weeks ago
when she missed her period and after two weeks began to have
an irregular flow with pain in the left side of the pelvis. (The
right tube had been removed at the operation.) Examination
showed a slightly enlarged and tender tube. He put her to bed
and is watching her carefully.

The vaginal route offers advantages where there are old retro-
uterine blood clots, which may have undergone suppuration or
decomposition. The probability of infecting the peritoneal cav-
ity, is of course much less than if the mass were removed through
an abdominal incision. It is interesting to note that a number
of German gynecologists have been trying the expectant plan of
treatment in cases in which the fetus is dead in the early months
of pregnancy and in old hematomata which have resulted from a
rupture or abortion. They demand other indications for opera-
tion than the finding of the hematoma. Some of them report very
good results from rest in bed, with applications, douches, etc., to
aid absorption. Ihm (from the University clinic in Konigsberg)
has recently given some interesting statistics of conditions found
in cases of extra-uterine pregnancy. He reports forty-four cases
as follows:

Two cases of decomposing retro-uterine hematoma; sixteen
cases of retro-uterine hematoma; nineteen cases of pevi-tubal he-
matoma; three cases of a large fetal sac in the second half of preg-
nancy (one fetus being alive); one case of intact sac with fetus
at the beginning of the fifth month; one case of rupture of the

[1]See original article, page 58.

sac and discharge of pieces of the fetus through the bladder; one case of the residuum of an old retro-uterine hematoma, the larger portion of which had previously been removed by a vaginal operation.

In these cases three times the indications seemed to point to the vaginal operation. Duhrssen and other operators who are accustomed to deal with nearly all of their pelvic inflammatory cases by the vaginal route advocate the removal of small unruptured tubal pregnancies through an incision anterior to the cervix. In the hands of those accustomed to performing operations by this method the operation is perhaps a safe one, but the majority of men should do a celiotomy. In operating by the vaginal route there is less shock, less danger of infecting the peritoneal cavity, the patients convalesce much more rapidly, and there can be no post-operative hernia. The great objections to the route are (1) the difficulty in finding out the actual condition of the pelvis and the pathological changes in the abdominal viscera, (2) in cases of extra-uterine pregnancy, where the fetus is of considerable size it is not feasible to remove it with its sac, through the vaginal opening, (3) the increased danger from hemorrhage. The objections to the vaginal route are so strong that the abdominal section is preferable in nearly all cases. There are, however, certain instances in which the vaginal operation is the safest, quickest, and all that is necessary. In doubtful cases it is better to make the abdominal incision and exploration first, and then, if the indications call for it, do the vaginal operation afterwards. This is much better than to do the operations in the reversed order.

DR. LEWIS was convinced that every advantage offered by the vaginal route is also offered by the abdominal.

DR. MILLER said the cases spoken of as treated by the expectant plan are probably old cases. He does not agree with this treatment. In nearly every case an operation should be done. Operations through the vagina, in unruptured cases, should be done by those only who are accustomed to this operation.

Meeting of February 6, 1903.

The President, G. WYETH COOK, M.D., *in the Chair.*

DR. JOHN F. MORAN read a paper on

PLACENTA PREVIA.[1]

[1]See original article, page 76.

TRANSACTIONS OF THE
OBSTETRICAL SOCIETY OF LONDON.

Meeting of Wednesday, April 1, 1903.

The President, EDWARD MALINS, M.D., *in the Chair.*

MR. SAMPSON HANDLEY read a paper on

A CASE OF HYDROSALPINX OF AN ACCESSORY FALLOPIAN TUBE, DUE
TO TWISTING OF THE PEDICLE.

He considered it doubtful if the existence of hydrosalpinx of
an accessory tube had been proved. The specimen now shown
was conclusive in that it possessed a communication with the main
tube, and, like ordinary hydrosalpinx, was a retention cyst. Koss-
mann had described under the name "hydroparasalpinx" certain
small cysts possessing a muscular wall, which he found in the
broad ligament in association with tubal rudiments. These cysts
had no communication with the main Fallopian tube. Kossmann
did not bring forward any conclusive proof for his view that these
cysts were distended rudimentary tubes.

For purposes of comparison the author described, from personal
observation, the appearances seen in a section taken in the long
diameter of an ordinary hydrosalpinx starting at the uterine end.
The diameter was greatest, the thickness of the wall least, and the
tissues most degenerate at the ostial end. The epithelium first
losing its cilia became cubical, then flattened, and finally, at quite
an early stage, disappeared altogether, except from the plicæ and
in the subplical spaces. The plicæ were very persistent structures,
owing to their vascularity, and stained well, even when the wall
from which they spring was quite degenerate. After their dis-
appearance the occurrence of subplical spaces, perhaps lined by
flattened epithelium, must still show that the wall of the hydrosal-
pinx, although consisting of little but hyaline fibrous tissue, was a
degenerate Fallopian tube.

The hydrosalpinx of an accessory tube described to-night was
No. 4582 in the Pathological Series of the R. C. S. Museum. It
was described as "a thin-walled pyriform cyst, developed under
the broad ligament at the point where it is reflected over the Fal-
lopian tube." The cyst was attached to the upper border of the
tube, like a growing pear, by a very short twisted stalk. Its di-
ameters were 2.2 cm. by 1.4 cm. Its wall thinned progressively
from the attached to the distal end, concurrently with an increase
of diameter. Internally it was marked by branching fibrous-look-
ing bands standing out in relief. When the Fallopian tube was
distended with air, the air escapes into the interior of the cyst.
A microscopical section showed that the wall of the cyst was simi-

lar in structure to that of an ordinary hydrosalpinx.   There was
a well-marked muscular coat; plicæ and subplical lacunæ were
seen.   The tissues were degenerate towards the thin distal end.

The cyst had, therefore, all the peculiarities of a hydrosalpinx.

The history of the specimen was lost, but it was not devoid of
clinical interest.   A pyosalpinx of an accessory tube might lead to
a fatal result.   Pregnancy in an accessory tube had quite recently
been recorded.   It was therefore advisable to ligature and remove
an accessory tube, if one was found.

The presence of plicæ and of subplical lacunæ in a cyst of the
broad ligament has apparently not hitherto been described.   The
present communication was preliminary to one on the origin of
broad ligament cysts, since the writer could bring forward evi-
dence that many such cysts are derived from "rests" of the Fallo-
pian tube.

Mr. ALBAN DORAN congratulated Mr. Handley on his judicious
criticism of current ideas concerning the origin of new growths
in the region of the broad ligament and Fallopian tube.   Koss-
mann's theory was of great importance, perhaps he was not strictly
accurate when he implied that parovarian cysts and papillary cysts
of the broad ligament all arose from tubal or Mullerian elements
and not from relics of the mesonephron, but he was very possibly
correct in ascribing the abundant free papillomata, which some-
times buried both broad ligaments, tubes and ovaries to tubal ele-
ments.   If that view were correct, it might account for the clini-
cally innocent character of many cases of bulky free papillomata,
notwithstanding formidable complications, which vanished when
the growths were removed.   The masses were hypertrophied tis-
sue, rather than neoplasms.   Mr. Doran removed a very heavy
pair of such outgrowths, which nearly filled the abdomen, nine
years ago, and the patient remained well.

He asked Mr. Handley if it were really justifiable to amputate
a tube and mesosalpinx solely because accessory ostia and tubes
were detected; Mr. Doran admitted, however, that these little
growths were probably more than pathological curiosities, so that
it seemed prudent to close an accessory ostium by suture of the
adjacent serous membrane, and to amputate accessory tubes.

Dr. HERBERT SPENCER did not think that it had been proved
that the specimen shown was an accessory tube; he thought it was
more probably an "antrum tubæ"—a saccular dilatation of the
tube in the situation of the specimen shown described by Roederer
in "Icones Uteri Humani Gravidi," and figured in Montgomery's
"Signs and Symptoms of Pregnancy."   The "Antrum" was not
mentioned in modern books; Roederer asked whether it was not
produced by pregnancy; but Montgomery showed that this was not
the case by finding it in unimpregnated uteri.   He (Dr. Spencer)
had found it in pregnant cases, but it was much more often absent.
The "antrum" contained plicæ, and of course, was of the same his-
tological structure as the tube, so that Mr. Handley's specimen
could not be said to be a tube as a result of the histological evi-

dence. It was pure hypothesis that the "accessory tube" had been closed by inflammation, and there was an absence of epithelium on the so-called fimbriæ in the specimen. It was, however, well known that an accessory ostium with perfect fimbriæ was not rarely met with in this situation, and he thought both the antrum and the accessory fimbriated ostium were due to some developmental peculiarity. But he thought they might ask Mr. Handley to produce a tube of approximately the shape of the normal "tube" before they spoke of an accessory tube; the sketches showed structures bearing a very remote resemblance to "Fallopian tubes."

He would suggest that further investigation should be made into the subject of the "antrum tubæ"—a suggestion first made by Roederer himself.

Mr. MALCOLM thought that Mr. Handley had proved that the cyst he described was a dilated accessory Fallopian tube. The fact that layers of peritoneum, muscle, fibrous tissue and débris representing mucous membrane, were found in the wall of a cyst, which communicated with the tube, seemed quite conclusive evidence. Mr. Handley would strengthen his argument, if he could show that some of the closed cysts, which seemed similar to the one described had also the various layers of tissue in their walls, which are formed in the Fallopian tube. The speaker was much interested in the description of the microscopic appearances of the wall of an ordinary hydrosalpinx. The condition suggested to him that in the normal tube towards the fimbriated end, the flow of its contents was probably towards the peritoneal cavity. The secretion of the tube (for it must have a secretion, or there could be no hydrosalpinx) and effete epithelial cells, cast off from the mucous surface, would, if near the free end, find an easier exit towards that end, than towards the uterus.

The readiness with which an extra-uterine fetation near the fimbriated extremity may be expelled into the peritoneal cavity, was further evidence to the same effect.

It followed that if any slight inflammation closed the fimbriated extremity of the tube, the contents of the external portion, which were accustomed to flow outwards into the peritoneal cavity, would be able to escape only through the uterus, and if the vascular power were insufficient to propel the contents forward, a hydrosalpinx would develop. The condition described by Mr. Handley, with the thinner walled part near the fimbriated extremity of the tube, would follow.

Lt. Col. A. J. STURNER sent a short paper on

FOUR CASES OF RUPTURED EXTRA-UTERINE GESTATION OCCURRING IN TWO WOMEN.

In each instance the case was treated by abdominal section, and a satisfactory recovery was obtained. The comparative rarity of extra-uterine gestation occurring twice in the same subject was discussed, and the question of conservative treatment in dealing with tubal gestations was briefly reviewed.

Mr. A. G. R. Foulerton and Dr. Victor Bonney read a short communication on

A CASE OF PRIMARY INFECTION OF THE PUERPERAL UTERUS BY DIPLOCOCCUS PNEUMONIÆ.

The authors pointed out that this case was undoubtedly one of primary infection of the genital passages by diplococcus pneumoniæ, occurring during the puerperium, and they remarked on the extreme rarity of this form of puerperal infection.

Similar cases had been recorded by Weichselbaum and by Bar and Tissier, but the latter author's statements were not supported by bacteriological proof.

Infection secondary to lobar pneumonia was probably much commoner, and they cited a case investigated by one of them, in which diplococcus pneumoniæ was found in the uterus of a patient who died in the Middlesex Hospital of lobar pneumonia, premature labor having occurred on the second day of the disease.

The President gave a brief description of two cases of a similar nature, which had occurred in his practice.

SPECIMENS.

Dr. Arnold Lea showed two specimens of double tubercular disease of the appendages removed by operation, and Mr. Alban Doran recorded his experience of such cases. Dr. Groves showed

(1) A fibroid of the uterus which appeared two years subsequently to the removal of both appendages.

(2) A uterus affected with early adeno-carcinoma.

(3) A distended Fallopian tube, due possibly to extra-uterine gestation.

Dr. W. C. Swayne showed two specimens:

(1) Fibroma of the vagina.

(2) Fibroid of the uterus removed by pan-hysterectomy, and Dr. Heywood Smith contributed some comments on the latter specimen.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Treatment of Ovarian Cysts During Pregnancy.—Cocq (*Gaz. de Gyn.,* Feb. 15) favors oophorectomy as soon as the diagnosis is made, believing that the earlier it is performed the greater the chance of success. If it is postponed sudden accidents may force the operation under unfavorable circumstances. The ordinary technique should be employed, but in order to avoid inciting uterine contractions an effort should be made not to exert much traction upon the pedicle. For the same reason morphine may be administered. It has been recommended, in cases seen during the late months of pregnancy, to wait or to puncture the cyst through the abdomen or vagina ; but by this course the woman is exposed to the dangers of rupture or inflammation of the cyst wall or torsion of its pedicle, which would necessitate immediate laparotomy. Seen during labor, if the tumor is abdominal and not causing compression it should only be watched. If the second stage is prolonged forceps or version is called for. If the tumor is pelvic, however, it should be pushed up, under chloroform, between pains. If this succeeds the labor should be terminated by forceps or version as soon as the cervix is dilated. Failing to move the tumor in this way it should be punctured or incised through the vagina. All forcible manipulations must be avoided. Should attempts to puncture an incarcerated cyst fail version, forceps, and embryotomy are dangerous and laparotomy is preferable. If the cyst can be removed in this way the labor may be allowed to proceed, otherwise Cesarean section or even abdominal hysterectomy followed by extirpation of the tumor may be necessary.

Real and Simulated Tubal Pregnancy.—The paper of C. Schambacher (*Zeit. für Geb. u. Gyn.,* Bd. xlviii., 43) is based upon fourteen cases diagnosed as tubal pregnancy. In four of these operation showed other conditions : in one, hematosalpinx after pneumonia ; in two, chronic hemorrhagic salpingitis ; in another, hemorrhage from a laceration of a varicose vein and broad ligament during coitus. The etiology of tubal pregnancy is still uncertain. Probably the length and permeability of the tube and the degree of development which the ovum has attained while passing through it play a rôle, while inflammation is not an important factor. The development of villi in the ovum implanted in the tube may be slight or marked ; the former leads to tubal abortion, the latter causes rupture. Decidua formation does not occur in the mucous membrane in all cases. In some a rudimentary decidua is found in the vessel walls adjacent to the villi. There are conditions which may closely simulate tubal abortion or rupture, especially malformations and hemorrhagic salpingitis.

Hemorrhages of the Central Nervous System in the New Born.—A. Convelaire (*Ann. de Gyn. et d'Obst.,* Apr.) has made a study of fifty-one autopsies upon children dying within a few hours or days after birth. In eleven he found hemorrhages into the central nervous system, five cerebral, six into the spinal cord. Of the thirty-three premature infants weighing less than three thousand grammes, none presented hemorrhages into the spinal cord, but five showed cerebral hemorrhage. The six which had hemorrhage into the cord were above this weight. Convelaire states that in premature births the brain is more often the site of the lesion than the cord, while in children at term the reverse is true, and his cases seem to show that these spinal hemorrhages are etiologically connected with laborious delivery.

GYNECOLOGY AND ABDOMINAL SURGERY.

Appendicitis.—A. J. Ochsner (*Med. News,* May 2) makes the following suggestions for the treatment of appendicitis. 1. Patients suffering from chronic recurrent appendicitis should be operated during the interval. 2. Patients suffering from acute appendicitis should be operated as soon as the diagnosis is made, provided they come under treatment while the infectious material is still confined to the appendix, if a competent surgeon is available. 3. Aside from insuring a low mortality this will prevent a series of complications. 4. In all cases of acute appendicitis without regard to the treatment contemplated the administration of food and cathartics by mouth should be absolutely prohibited. 5. In case of nausea or vomiting or gaseous distention of the abdomen, gastric lavage should be employed. 6. In cases coming under treatment after the infection has extended beyond the tissues of the appendix, especially in the presence of beginning diffuse peritonitis, conclusions four and five should always be employed until the patient's condition makes operative interference safe. 7. In case no operation is performed neither nourishment nor cathartics should be given by mouth until the patient has been free from pain and otherwise normal for at least four days. 8. During the beginning of this treatment not even water should be given by mouth, the thirst being quenched by rinsing the mouth with cold water and by the use of small enemata. Later small sips of very hot water frequently repeated may be given and still later small sips of cold water. There is danger in giving water too freely. 9. All practitioners of medicine and surgery, as well as the general public should be impressed with the importance of prohibiting the use of cathartics and food by mouth in cases suffering from acute appendicitis. 10. It should be constantly borne in mind that even the slightest amount of liquid food of any kind given by mouth may give rise to dangerous peristalsis. 11. The most convenient form of rectal feeding consists in the use of one ounce of one of the various concentrated liquid predigested foods

in the market, dissolved in three ounces of warm normal salt solution introduced slowly through a soft catheter, inserted into the rectum a distance of two to three inches. 12. This form of treatment cannot supplant the operative treatment of acute appendicitis, but it can and should be used to reduce the mortality by changing the class of cases in which the mortality is greatest into another class in which the mortality is very small after operation.

Local Treatment in Gynecology.—F. H. Martin (*C l i n. Rev.,* May), outlines the local treatment for uterine engorgement, endometritis and chronic metritis. He believes it is well nigh impossible to state definitely where one of these conditions ends and the other begins. The ideal treatment for the above conditions is a thorough curettement of the uterus with repair of any lacerations. When they will not submit to this procedure we must resort to the postural treatment; this has for its object the correction of any prolapse of the uterus. The patient should place herself in the knee-chest position for two minutes several times a day; while in this position she should press backward upon the perineum with one finger so that air will enter the vagina. Afterwards the patient should assume the Sims position for some time. Hot astringent douches are of value and should be given several times a day. Local applications to the cervix of antiseptics and astringents should be applied three times a week, as the local conditions indicate. Before making applications to the cervix it must be slightly dilated and all secretions removed. If the amount of the discharge is considerable and an astringent is deemed desirable, a strip of plain gauze may be carried to the fundus of the uterus and a considerable pad left in the vagina, the whole to be removed in twelve hours. Tampons may be used for support and for the purpose of applying a depleting remedy. Chronic engorgement of the uterus, simple or complicated with endometritis, can be very effectively treated by galvanism.

Nature of Hydrosalpinx.—Clement White (*Jour. Obstet. and Gyn., Br. Emp.,* March), agrees with most authors that hydrosalpinx is a retention cyst. Some cases are little more than a catarrhal salpingitis with an excessive amount of fluid retained. That some are due to an edematous condition in final stages of kidney disease is also probable. Others are due to peritonitic closure of the tube while some are due to impervious ostea due to faulty development. He reports a series of cases in which he believes that faulty development was the cause of the hydrosalpinx.

The Scope of the Vaginal Incision.—Andrew F. Currier (*An. of Gyn. and Ped.,* May), gives the indications for the various vaginal incisions. Those for the anterior incision are: (1) retroflexions where the uterus is only slightly adherent, and not greatly enlarged: (2) ligation of the tubes to prevent pregnancy; (3) the removal of myomata on the anterior wall of the uterus; (4) the removal of pyosalpinx, hydrosalpinx and ovarian tumors when located in the anterior pelvic segment: (5) the drainage of exudates and pus in the anterior pelvic segment: (6) for diag-

nostic purposes. The posterior incision is much more useful and is valuable in the following conditions: (1) For diagnoses of pelvic conditions, not only those purely gynecological, but also tuberculous deposits in the omentum, enlarged retro-peritoneal glands, disturbed conditions of the intestines. etc. (2) Pelvic exudate may be drained through this incision, care being taken not to use too much force in the manipulations. A large abscess may be perforated with a trocar, the pus drawn off and the cavity irrigated with a mild antiseptic solution, enlarge the opening and fix the canula in the incision and subsequently irrigate once or twice a day. (3) Tumors of the ovaries and tubes if not firmly adherent or too large. (4) Pedunculated uterine myomata. (5) The rational method of attacking intra-ligamentous cysts is from below and their enucleation and removal by this route is, as a rule, more satisfactory than from above. (6) To free an adherent uterus prior to an operation for retroversion by another route. (7) Drainage of fluid from the abdomen due to tuberculosis, liver and kidney disease and malignant growths. (8) The removal of growths interfering with delivery of the pregnant woman.

Treatment of Puerperal Sepsis by Nuclein and Saline Solution.—J. Hofbauer (*Arch. f. Gyn.*, Bd. 68, H. 2), has treated nineteen cases of puerperal infection with nuclein and injections of saline solution, all severe cases with either negative gynecological conditions or such slight local lesions as apparently failed to account for the serious symptoms of intoxication. The uterine secretion was found to contain streptococci in seven cases, bacillus coli in three. staphylococci sometimes accompanied by saprophytes in five, the others not determined. The first series of seven cases was published in 1896; the present of twelve shows eleven recoveries. The nuclein was usually administered by mouth, the reaction being more prompt and durable than in the two cases in which it was at first given subcutaneously. Large quantities of normal saline solution were given by hypodermatic injection or by rectum. The exact dosage and frequency are described in the paper. The treatment with nuclein was continued until a reaction of the bone-marrow was shown by clinical blood examination or tenderness of the bones. The saline injections were employed for several days after this reaction appeared. Large amounts of alcohol were given only in the early stages as its prolonged use seemed to lead to collapse and cardiac weakness. Cold packs were substituted for baths when the temperature was high on account of the tenderness of the bones. The article contains a discussion of the theory of the treatment, which depends upon stimulation of the bone-marrow resulting in blood-cell production and increase of the formation of ante bodies.

Bossi's Method of Cervical Dilatation.—A. Dührssen (*Arch. f. Gyn.*, Bd. 68, H. 2), does not consider Bossi's method of dilatation of the cervix an advance in the technique of operative obstetrics. He still prefers deep cervical incisions for rapid

emptying of the uterus; and with an undilated cervix constant traction upon a Müller's balloon combined with incisions after the upper portion of the cervix has yielded. Should the bag be in-effectual he would perform vaginal Cesarean section.

Toxemia of Pregnancy.—Wm. H. Wells (*Phil. Med. Jour.,* Feb. 28), in making a diagnosis of this condition, takes into con-sideration the symptoms and the amount of solids and urea ex-creted. A diagnosis should never be made on the presence of al-bumin alone. The symptoms of toxemia of pregnancy may some-what resemble those of hysteria. Infrequently the symptoms of the toxemia may somewhat resemble those of threatened miscar-riage and the constant irritation of the uterine muscle by the toxins may produce a miscarriage. If cramps be due to toxemia, there will be no bloody discharge or softening and dilatation of the cervix. When vomiting is the most prominent symptom the other causes of vomiting must be ruled out. The symptoms may simulate those of an acute indigestion. The prognosis in the ma-jority of cases, if not complicated with nephritis, is good. When the excretions are faulty the prognosis is only good in so far as the patient follows the advice of her physician. The important indication in the treatment of toxemia is to increase elimination by the bowels, kidneys, liver and skin. As a rule patients do better on a diet which contains a low percentage of nitrogenous principles. Most patients do better without any meats. Milk and vegetables containing starch and those rich in mineral salts should be allowed freely. Coffee and tea should be allowed only in rare instances. In nauseated patients frequent feedings of small quan-tities of food give good results. The administration of five grains of strontium bromide and 1-10 of a grain of cocaine hydrochlorate one-half hour before meals will greatly aid the retention of food. The elimination by the skin should be increased by the proper clothing, baths and friction. In severe cases hot packs will secure relief. A suitable amount of out-door exercise must be taken. The action of the kidneys may be increased by plenty of water, and sweet spirits of nitre. Syncope and cardiac irritation may be relieved by digitalis and nitroglycerine. Nervous irritability calls for small doses of chloral. For a high tension pulse give vera-trum viride. Preparations of opium are only to be given during an eclamptic convulsion. Calomel in fair doses followed by a saline should be given to aid elimination by the intestines and liver. Purging must be kept up for some time before any effect is produced. Irrigation of the bowels is of the greatest possible value, not only to cleanse the bowel, but on account of the absorp-tion which takes place. Lavage of the stomach often relieves nausea, pyrosis or hyperacidity.

Pregnancy Complicated by Suppurating Hydatid Cyst of the Liver.—Richard Jones (*Br. Med. Jour.,* April 11), deliv-ered a woman of a healthy child, the labor being normal. On the third day after birth she had a rise of temperature. Through the period of gestation she had spasmodic seizures of pain in her side

accompanied with vomiting and jaundice. The physical signs on the right side were those of fluid in the pleural cavity, also a sensation corresponding to the hydatid fremitus could be felt. The chest was opened and it was found the cyst communicated with a large bile duct. The patient died four days after the operation.

Etiology of Ectopic Pregnancy.—J. J. Pauton (*Northwestern Med.*, April), finds frequently among the prominent factors in the causation of ectopic pregnancy what appears to be external migration of the ovule; during its external migration it becomes so large that it is unable to enter the tube. Of congenital abnormalities may be mentioned twisting of the tube and diverticula which may retard the normal course of the ovum. The pathological conditions are by far the most frequent cause. Among these may be mentioned (1) peritonitic adhesions constricting the tube; (2) loss of the cilia of the tubal epithelium; (3) atresia of the tube due to preceding pyosalpinx; (4) thickening of the tubal wall, diminishing peristalsis; (5) pressure from growths outside the tube or in its wall; (6) cervico-abdominal fistula after hysterectomy.

Albuminuria of Pregnancy.—Wm. Rittenhouse (*Clin. Rev.*, May), lays particular stress upon the importance of examining the urine of pregnant women every two weeks during the last three months of pregnancy. In making this examination the amount passed in twenty-four hours should be obtained. The specific gravity should be determined to see that the proper amount of solids are passed. In the treatment of albuminuria the writer finds digitalis of more use than any other diuretic. To obtain results it must be boldly pushed. The diet should be rather light but nourishing. In convulsions a combination of one-fourth grain of morphine and one-eighth of pilocarpine given hypodermically is of value.

Pregnancy in a Rudimentary Uterine Horn.—F. H. Langlands (*Inter. Med. Jour.*, March 20), reports a case of pregnancy occurring in a rudimentary horn which went on normally from October to May, when the patient received a blow in the abdomen. From that time movements ceased. In August labor pains came on and lasted seven days. In January the patient was operated upon and a macerated full term fetus removed with the rudimentary horn. The fetus must have been dead about eight months. Recovery uninterrupted.

Shortening the Round Ligaments.—Henry F. Byford (*Jour. A. M. A.*, May 2), when shortening the round ligaments, folds them anteriorly according to Dudley's method, but he also stretches the loop to the abdominal parietes about opposite or behind and a trifle above the internal inguinal ring. By this procedure we have practically two round ligaments on either side.

Resection of Intestine for Perforation.—Kayser (*Arch. f. Gyn.*, Bd. 68, H. 2), reports a successful intestinal resection with

the aid of a Murphy button. The operation was necessitated by multiple perforation of the intestine as the result of the presence in the peritoneal cavity of a gauze pad which had been left there at a former laparotomy. His paper discusses the subject of intestinal resection. He favors wedge-shaped excision of the intestine with complete retention of the mesentery.

Waste of Antenatal Life.—Edw. Malins (*Jour. Obstet. and Gyn., Br. Emp.*, April), has compiled a set of tables to show the waste of antenatal life among the wealthy and the poor. From this table he makes the following deductions: (1) That fecundity is greater among the poor. The number of children is very nearly double in the hospital cases compared with the private list. This is not a desirable condition. (2) That the better classes abort more frequently than the lower. The percentage being greater whether in relation to their pregnancies or their number of children. (3) Sterility is far commoner among the better class. (4) That the proportion of one miscarriage to every five children, or 20 per cent, expresses a formidable antenatal waste of life. (5) The percentage of still-born children in hospitals is about 3 per cent. (6) Lastly, these deductions were made from 4,000 cases, including the entire productive life of women, and in computing sterility roughly, two years of married life.

Diseases of the Circulatory Apparatus During Pregnancy.— E. Castelli (*Amer. Med.*, March 28), finds that the mitral lesions, especially stenosis, are more affected by the changes in the vascular system during pregnancy and labor, than are the aortic lesions. The asystolia in pregnancy assumes a special character due to the predominance of pulmonary troubles. The asystolic troubles assume the character of regularly intermittent crises and are accompanied by pulmonary apoplexy. Besides those cases in which the mechanical troubles are more evident we have those in which the predominant symptoms are due to a want of compensation of the cardiac innervation.

If the patient with cardiac trouble does reach full term one of the most common and very dangerous complications is the metrorrhagia during or after labor; the hemorrhage endangers the life of the patient, and when death is not the immediate result, a severe chronic anemic state follows. If the woman develops dangerous symptoms during pregnancy, induce abortion or premature labor. If she dies in the last weeks of pregnancy, and the fetus is alive, Cesarean section should be performed. During labor the strength of the heart should be kept up with digitalis. If necessary, on account of untoward symptoms, dilate the cervix and deliver manually. Prohibit the mother from nursing the child.

Indications for Extirpation of the Gall-bladder.—Maurice H. Richardson (*Med. News*, May 2), removes all gall-bladders the seat of new growths or gangrene and those bladders which do not permit easy and efficient drainage for in such gall-bladders the risk of drainage is quite as great as the risk of extirpation.

Drainage is preferable in the dilated and infected gall-bladder, which, however, is neither gangrenous nor to any extent changed, the slightly thickened gall-bladder containing gall-stones and infected bile. This gall-bladder will, after drainage, become normal, and therefore, capable of fulfilling the functions of a gall-bladder. Through it the biliary passages will become effectually drained, after subsidence of the temporary swelling about the cystic duct. As a rule, drainage, rather than extirpation, is demanded in acute cholecystitis with severe constitutional symptoms, when the gall-bladder is dilated, or at least not contracted, and when it is not gangrenous. In chronic cholecystitis, with dilatation and thickening of the gall-bladder, especially when a stone is impacted in the cystic duct, extirpation is the preferable operation, unless the stone can be dislodged backward into the gall-bladder, in which case drain. In simple gall-stones without visible evidence or infection or chronic changes, incompatible with complete restoration of function, simple drainage is indicated. In chronic pancreatitis, whether associated with gall-stones or not, drainage through the gall-bladder is indicated. Cholecystectomy is unjustifiable, for immediate drainage is essential. Furthermore, reopening of the biliary passages may in the future be required.

Operative Treatment of Myomata in Pregnancy.—Frank (*Monatschr. f. Geb. u. Gyn.*, Bd. xvii., H. 4), discusses the indications for operative treatment of uterine fibroids during pregnancy on the basis of seven reported cases. He considers operation indicated only under the following circumstances: (a) During pregnancy: (1) when there is rapid growth of the tumor or respiratory or circulatory disturbances. Under these conditions myomotomy is to be preferred; hysterectomy if this is not feasible. (2) When it is supposed that the tumor may cause premature interruption of pregnancy; (3) when the growth causes peritoneal symptoms or signs of incarceration; (4) in cases of myoma of the cervix, particularly the vaginal portion, since these tumors may be removed without interrupting pregnancy, and since this class of myomata easily becomes gangrenous and causes serious disturbances in the puerperium; (5) when the myomata are polypoid. (b) During labor may be performed: (1) Vaginal operations, version and extraction, if the tumor is not too great an obstruction; perforation if the child is dead, version fails or fever is present; vaginal enucleation of myomata of the pars intermedia if it is improbable that the child can pass the obstruction. (2) Celiotomy, either enucleation of the tumor of the supra-vaginal portion of the cervix and spontaneous termination of labor, removal of subserous growths reaching into the true pelvic cavity; Cesarean section with or without removal of the tumor and followed or not by castration or hysterectomy, total or supra-vaginal.

Anatomy of the So-called Fundamental Uterine Plexus.— S. Pissemski (*Monatschr. f. Geb. u. Gyn.*, Bd. xvii., H. 4), has

studied uterine preparations of infants, children, pregnant and non-pregnant women, cats, bitches, and guinea-pigs. His conclusions are : (1) In women and the animals examined the cervical ganglion as described by J. Walter, R. Lee, and Frankenhäusser does not exist. (2) At each side of the cervix, in the region where the cervical ganglion has been described as situated is a network of nerves with a number of scattered ganglia. (3) This plexus is derived from branches of the second, third and fourth pairs of sacral nerves of the cerebrospinal system, and receives nerves from the hypogastric plexus of the sympathetic. (4) At the junction points of these nerve fibers and along their course are numerous ganglionic collections of nerve cells, many of these ganglia are macroscopic, others can be discovered only with the microscope. (5) These ganglia and nerves form the sympathetic plexus of the pelvis. They may be described as uterine, vesical, vaginal, and rectal. (6) The character of the plexus and the macroscopic size of the ganglia is the same in gravid as in non-pregnant women. (7) This plexus may be designated the fundamental nerve plexus of the uterus.

Bilateral Ligation of Hypogastric and Ovarian Arteries for Inoperable Carcinoma of the Uterus.—Three cases treated by this operation are reported by O. T. Lindenthal (*Zent. f. Gyn.*, No. 10). In all the hemorrhage was arrested though the growth of the tumor continued. In two this improved the general condition, but in the third the cachectic condition was too far advanced. Lindenthal regards the operation as relatively free from danger, and advisable in some cases in which inoperable carcinoma of the vagina is not too extensive, the cachexia is not too marked, and the most disturbing symptom is bleeding which will not yield to other treatment. The hemorrhage may soon recur.

Silver Nitrate Conjunctivitis of the Infant.—C. W. Bischoff (*Zent. f. Gyn.*, No. 10), has tabulated the results of the prophylactic use of two per cent silver nitrate solution in the eyes of one hundred new-born children. In eighty a reaction was observed, but in only twenty of these was it of even moderate intensity, and in none was it severe. This conjunctivitis never lasted more than three days, and frequently less. Treatment seemed not only unnecessary but even harmful. With protargol no less severe reaction was obtained. Silver acetate, he believes, causes less irritation. In view of the results of others he would advise the use of one-per-cent silver nitrate or silver acetate solution.

Chorio-epithelioma.—An unusual case of chorio-epithelioma is recorded by C. Fleischmann (*Monatschr. f. Geb. u. Gyn.*, Bd. xvii., H. 4). At the age of 27 the patient, a III-para, was curetted for hydatidiform mole. Menstruation was then regular at first, but after about nine months began to be more scanty and at greater intervals and eventually ceased. Two years and nine months after the above curettage a tumor was removed from the vaginal wall, the woman having refused hysterectomy. It proved, as was expected to be a chorio-epithelioma. The woman's gen-

eral condition was very good at this time. Hemorrhage soon after from the uterus and vaginal wound led to curettage by which fragments of chorio-epithelioma were removed, substantiating the diagnosis of a growth of this character with metastatic deposit in the vaginal wall. The uterus was perforated by the curette, but without serious results. The woman soon left the hospital, having declined further treatment. Seven months after the operation she began to menstruate regularly, and when seen three months later was in perfect health with no signs of local disease. The points emphasized by the writer are: the long period, two years and nine months, between the removal of the hydatidiform mole and the discovery of the malignant tumor; the absence of hemorrhages from the growth; the perforation of the friable uterus during curettage; repeated hemorrhages from the vaginal wound after excision of the chorio-epithelioma; the regeneration of the uterus until it performed its physiological function, menstruation; the completely intact condition of the vagina, subsequently, and undisturbed recovery. The case is a rare exception to the rule that a radical and immediate operation should be performed in all instances of chorio-epithelioma, as this tumor is usually of a malignant type.

DISEASES OF CHILDREN.

The Recognition and Prompt Removal of Postnasal Adenoids in Children.—Louis J. Lautenbach (*Jour. Am. Med. Asso.*, March 28, 1903) thus sums up his conclusions: (1) That the disease is a very frequent one, especially among children; (2) that it is relatively much more common among the poorly nourished and those suffering from constitutional and nutritive disturbances, and is rarely observed among the apparently well; (3) that it is usually found in connection with enlarged pharyngeal tonsils; (4) that it is most frequent among deaf mutes; (5) that its presence is usually determined by the symptoms, but digital examination is both easy and certain; (6) that its presence causes most serious local and general derangements; (7) that its presence predisposes to numerous diseases; (8) that the treatment must be operative; (9) that the operation should be done without general anesthesia; (10) that the finger-nail operation is the most thorough, as well as the most safe; (11) that the rhinopharynx must be examined after every operation; (12) that the finger-nail operation is less likely to be followed by recurrence than the more serious operations; (13) that constitutional treatment must be thoroughly instituted in all these cases in order to overcome the predisposing cause of the growth.

Rheumatism in Childhood.—Robert Hutchison (*The Clin. Jour.*, April 8, 1903) says in regard to the prevention of this disease in children predisposed to it by heredity and diathesis that although it is certainly due to a micro-organism, there can be no

doubt that such agents as chill have something to do with its pro-
duction, probably acting by diminishing the resistance of the tis-
sue for the time being. See that the children are properly pro-
tected from the cold, suitably clothed, and not allowed to get wet
feet and sit in school in damp boots. Over and over again rheum-
atism has been known to develop after sea-bathing, and after the
injudicious use of cold baths—which are excellent things but
should not be abused. The minor manifestations of the disease
must be taken seriously. A little aching in one joint or a little
rheumatic stiffness about the muscles of the neck or the back may
not seem worth while paying attention to, but if the child is pre-
disposed to rheumatism it must be kept in bed. If that were regu-
larly done there would be fewer cases of serious cardiac disease in
later life. In regard to the treatment of rheumatism when it is
actually developed, the chief care must be to protect the heart.
The rheumatic pains are inconvenient and uncomfortable, and so
is pyrexia, but they are not in themselves dangerous; whereas the
least degree of endocarditis or pericarditis involves a serious risk.
Further, thanks to salicylates, the joint affections can be under
control. It is unfortunate that salicylates seem hardly to touch
the cardiac manifestations; in fact some people think their intro-
duction has increased the amount of cardiac disease rather than
diminished it by enabling the subjects of rheumatism to get up
and go about sooner than they would have been allowed to do in
the old days. When the pains are over one is apt to think that
the disease is over and to overlook the fact that there is a slight
endocarditis going on, which, if it becomes established, ends in
permanent damage to the valves. So that what one has to preach
about the treatment of rheumatism is the necessity of *rest*. If one
insists upon prolonged and absolute rest, and uses salicylates for
the local affection, applying blisters over the heart when there are
signs of pericarditis, one will do a great deal to prevent the patients
from becoming permanently crippled, and will consequently
diminish the amount of cardiac disease seen in adults.

The Seating of School Children According to Vision.—An
editorial (*Med. Age,* April 25, 1903) says that one of the most
important subjects in regard to school hygiene is that of the proper
seating of school children according to their ability to see. This
unfortunately has not received the attention in this country that it
deserves, and in consequence we are constantly called upon to at-
tend children suffering from nervous and other troubles, the origin
of which is undoubtedly eye-strain. A systematic examination of
the eyes of school children at certain intervals would be of great
benefit to those suffering from defective vision. This, combined
with care by teachers in allowing near-sighted pupils seats near the
blackboards and windows, would be the means of keeping in
school many children who otherwise would have to drop out on
account of poor health.

Sepsis of the Respiratory Apparatus in Early Infancy.—
Enrico Mensi (*La Riforma Medica,* Jan. 7, 1903) says that septic

infection occurs more frequently in the young child than in the adult, because of its lesser power of resistance against the invasion of microbes, because of less active phagocytosis, slight alkalinity of the blood, slight cellular reaction, etc. Local conditions favoring the entrance and development of germs consist in active desquamation of the skin and mucous membrane, and the imperfect development of the stratum corneum. The chief prophylactic measures are the avoidance of contact with impure substances at birth and after, and the providing of absolutely clean surroundings and an atmosphere filled with air, light and sunshine. The mouth, nose and pharynx should be kept in as aseptic a condition as possible by washings with boiled water or weak disinfectant solution, and the bronchial tract should be made antiseptic by inhalations of the benzoate of soda, eucalyptus or benzoin. If in spite of all precautions, broncho-pulmonary infections have occurred, medication is indicated which will favor bronchial secretion, and if possible have an antiseptic action on the mucosa. Should the pathogenic organisms penetrate to the blood and establish septicemia, the patient's strength should be sustained by alcohol, coffee and other restoratives, elimination of the toxins favored by intestinal lavage, and internal antiseptics, such as salol, benzonaphtol, etc., be given. According to Delestre, the best results are obtained by bleeding, followed at once by the injection of artificial serum.

Strangulated Hernia in an Infant Six Weeks Old—Operation—Recovery.—George Tully Vaughan (*Boston Med. and Surg. Jour.*, April 30, 1903) says that strangulated hernia in infants is probably more frequent than is generally supposed, the mother or nurse, no doubt, often attributing to colic the symptoms caused by hernia; yet the number of such cases reported is very small. Bull and Coley, with a very large experience, report only seven cases operated on under two years of age. The same authors report the youngest case operated on, according to Dowd's one hundred cases, as two months of age. The author reports the case of a colored male child, aged 46 days, which was admitted to the Emergency Hospital Jan. 8, 1903, with the diagnosis of strangulated hernia. The patient had been healthy until a few days before, when he was taken with a cough, and in the evening of Jan. 7 the mother noticed a swelling in the right side of the scrotum and inguinal region, and between that time and the time of admission to the hospital the child seemed to be in pain, cried a great deal and vomited several times. On admission to hospital, a tight swelling about the size of a hen's egg was seen in the scrotum and inguinal region. It was without impulse on coughing and straining and gentle taxis made no impression on it. The patient was anesthetized with chloroform and the intestine exposed by the usual incision—about eighteen inches of ileum being found in the sac of the tunica vaginalis testis, highly congested and a portion adherent to the bottom of the sac. This portion looked almost gangrenous in patches, and was observed for several minutes be-

fore deciding to restore it without resection. The constriction was at the internal ring, and this had to be slightly enlarged before the intestine could be reduced. The peritoneum and transversalis fascia were sewed across with kangaroo tendon as high up as possible, the cord was raised from its bed and one suture introduced to bring together the conjoined tendon and Poupart's ligament, the cord replaced, and the aponeurosis of the external oblique and fascia united over the cord by a continuous kangaroo tendon suture. The skin was united with continuous silkworm gut suture and sealed with collodion. No attempt was made to dissect the funicular process of the peritoneum from the cord—it was simply closed above by means of a kangaroo tendon suture carefully inserted so as not to injure the cord. Considerable difficulty was caused by the disproportion between the anatomy of the patient and the fingers of the surgeon.

There was no further trouble, no vomiting nor excessive crying. The stitches were removed on the 19th, eleven days after operation, and the patient was discharged well on the 24th.

"Silver Catarrh" in Infants.—A writer (*Med. Press and Circular,* April 22, 1903) observes that the adoption of Crédé's prophylactic method of instilling a 2 per cent. solution of nitrate of silver into the eyes of infants as a precaution against the occurrence of gonorrheal ophthalmia has led to such excellent results in the practice of the large maternities that it is matter of regret to find an attempt being made to attach a stigma to the procedure on the ground of its danger. Cramer states that there is some risk of dangerous after-consequence being set up, and supports this statement with statistics. In one hundred cases treated by Crédé's method there was what he calls enormous reaction in four, very strong reaction in twenty-five, strong reaction in thirty-one, and in eleven secondary catarrh. Other German authorities, however, have come to the support of Crédé, and have shown that while some slight reaction occurs in about eighty per cent. of cases, secondary catarrh never occurred. The writer's experience of the after-effects of silver nitrate is based on some four or five thousand cases, and although in some considerable reaction did occur, and persisted for a couple of days, as shown by the presence of pus between the lids, he never saw a case in which the infant showed any bad effects on the eighth day. It is a matter of regret that midwives in England are not taught to practise Crédé's method, but that, as shown by their answering at the examinations of the Obstetrical Society, they are almost invariably taught to substitute perchloride of mercury or boric acid for the silver solution.

An Epidemic of Acute Anterior Poliomyelitis.—Alice M. Woods (*Occidental Med. Times,* March, 1903) reports 25 cases which occurred in San Francisco and in its vicinity. More than thirty other children were said to be subjects of the same epidemic. Most of them were under three years, the youngest only a few months and the oldest ten and a half years. There were 19 males and 6 females. There was marked similarity in the mode of onset.

As to the distribution of the paralysis, it was much more frequent in the lower limbs, the tibialis anticus muscle being particularly vulnerable. Another point about this epidemic is that there was never more than one child in the same family affected, although in many of the cases there were other children in the homes. In one instance the second youngest was the only one paralyzed, out of a family of nine children all under twelve years, and all within the same environment. Locality, soil and sanitary conditions do not lend much light as to the cause of this disease. The consensus of opinion is that it is due to some infection ; as yet there has been no conclusive evidence of a specific germ. If we consider the fact that this infection, often without warning, strikes down the young and vigorous, and leaves them with more or less permanent injury, and also that medical treatment, thus far, has been of little use, are we not justified in looking forward to the science of preventive medicine as a means of escape from epidemics of this disease in childhood ?

Suicide in Children.— C. C. Mapes (*Med. Age,* April 25, 1903) says that there are numerous child suicides every year, and that they are increasing in frequency. Reasoning by a process of exclusion, the author considers that the actual determining causes of self-destruction in children are few in number, there being but three sufficiently prominent to merit serious consideration. These are in the order of their importance, 1. Suggestion or example (*i.e.,* a newspaper account which the child has either read or heard discussed relating the minutiæ of a recent suicide). 2. Grief, anger and desire for revenge because of some real or imaginary wrong (*e.g.,* corporal chastisement by parent or teacher, or even severe reprimand for some misdeed). 3. Jealousy, envy and humiliation. It is scarcely to be believed that child suicide would result from either of the latter causes without the pernicious influence of the former, and the daily press is therefore regarded as the primary and principal determining factor, or incentive to the act, while the latter are merely contributing or predisposing causes. In the opinion of the writer the secular press should by some means be prevented from publishing reports of suicides, as well as other kindred crimes ; and if the present laws are inadequate they should be so amended as to meet the indications ; moreover, when so amended they should be enforced to the letter, making examples of all publications that refuse to eliminate such reports from their columns. Trashy novels and all kinds of unwholesomely sentimental literature are a very important predisposing cause to suicide in this country. They produce a morbid condition of mind which unfits people for realities. Numerous cases of child suicide have come to the writer's notice during the past few years. One child three years of age threw himself into a tub of boiling water because he was rebuked and his younger brother petted. A girl of ten years swallowed carbolic acid because she was not allowed to go shopping with her mother. Another took strychnine because a relative was committed to the in-

sane asylum.   A boy of ten years shot himself; he had been read-
ing a newspaper account of an uncle's suicide by the same means.
Other cases are reported.

Surgery in Hydrocephalus.—Daniel La Ferte (*The Physician
and Surgeon,* Jan. 1903) says that Sutherland and Cheyne have
introduced a surgical procedure which seems based upon rational
lines, and to offer the best results.   It consists in draining the
ventricles into the sub-arachnoid space.   The operation is done
in the following manner: A curved incision is made along the
lower border of the anterior fontanelle down to the dura mater
A small incision is made in the latter membrane and the arachnoid.
A number of fine catgut strands about three inches long are
grasped with a pair of smooth forceps; one end is pushed down
in the sub-arachnoid space; the other end is then grasped with the
forceps, which are shoved through the cortex of the brain into
the ventricle.   It is a noticeable fact that no cerebro-spinal fluid
escapes from the subarachnoidal space during the operation, but
as soon as the ventricle is opened by puncture of the brain cortex
a copious flow takes place.   This shows that the foramen of Ma-
gendie, or communication between the ventricles and subarachnoid
space is obstructed and consequently the fluid cannot find its way
into this space, and the relation between the pressure of the cere-
bral fluid and the absorption by the veins of the cerebral mem-
branes cannot be maintained.   Cheyne suggests that a decalcified
drainage tube filled with strands of catgut be used instead of cat-
gut alone, believing that failures are frequently due to the brain
substance falling in between the strands of catgut, and that by
using the decalcified drainage tube, as absorption of the catgut
and tube goes on, lymph channels may be formed to establish a
permanent communication between the ventricles and sub-arach-
noid space.   Some make use of a rubber drainage tube, and others
use horsehair.   After the introduction of the drainage the wound
is sewed and dressed in the usual manner, and in five or six days
healing will be found to have taken place.   Another ingenious
operation devised by Stiles consists in removing the lamina of the
third lumbar vertebra, opening up the subarachnoid space, intro-
ducing a catgut strand in the opening, and sewing it in place;
carrying the other end under the erector spina muscle and through
an opening in the muscles and transversalis fascia into the peri-
toneal cavity; stitching it in place and closing the wound in the
ordinary manner.   If this operation can do good it must be in
those cases where the foramen of Magendie remains patulous, but
since we have no means of ascertaining whether that is so or not,
it would seem that this is an operation not to be recommended.
The danger in these operations seems to be comparatively slight.
On account of the change in the circulation of the brain, a slight
rise of temperature and some nervousness frequently follow, but
these symptoms are readily controlled.   Since the many surgical
procedures that have been tried have accomplished so little it would
seem that the operation of Cheyne and Sutherland should be given
the preference.

A Case of Almost Complete Absence of the Auricular Septum and Other Cardiac Malformations Complicated by Acquired Mitral Disease.

—T. Wardrop Griffith reports the case of a girl of 13 years, who was suffering from great shortness of breath, and on examination there was found an immense enlargement of the heart with a marked thrill all over the precordial area. The thrill was continuous, but with systolic increase of distinctness, and it was more markedly conducted upwards and to the right than upwards and to the left. The history of the patient showed that she was apparently quite well when born, and there was no appearance of cyanosis. About three or four years ago her natural rosy complexion used to change to blue when she exerted herself, yet she remained lively and well. Eighteen months ago she complained of pain in the precordial region and suffered from dyspnea after a walk. While at the hospital there was no marked cyanosis, the face was pale with a slight dusky tint of the lips; there was some venous fulness in the neck, with venous pulsation in the episternal notch associated with thrill; there was great cardiac enlargement with epigastric pulsation, and the margin of the liver was made out some 3in. below the costal margin. At the apex there was heard a loud roaring systolic bruit, followed by the second sound, which was in turn succeeded by another, not pure in character, and which, as there was no doubling of the second sound at the base, must probably be regarded as a diastolic mitral bruit. During her stay in the hospital there was slight puffiness of the eyelids, but there was no albuminuria, and the patient slowly went down hi'l, and succumbed to cardiac failure without the development of dropsy.

The post-mortem was made thirty-four hours after death. The heart was immensely enlarged; among other abnormal conditions, the mitral valve was manifestly diseased, its flaps being much thickened and having rounded margins, and the chordæ tendinæ being greatly thickened and fluted, while evidence of a more recent inflammation was afforded by a continuous fringe of recently organized granulations close to the free margin of its auricular aspect.

Of the auricles, the right was much the thicker and larger of the two. There was no vestige of a Eustachian valve at the orifice of the inferior vena cava. Externally the auricles were separated from one another by the usual furrow, but internally the separation was very imperfect, the auricular septum being almost wanting. Between the two auricles there was a large aperture of communication, oval in outline and measuring $1\frac{1}{2}$ by $2\frac{1}{2}$ inches, which was limited above and behind by a low ridge which corresponded to the above-mentioned furrow, while below and in front it was bounded by the ridge of separation between the two auriculo-ventricular apertures. This deficiency was occupied in rather more than its upper and back half by a fenestrated membrane of thick fibrous tissue, which was the only representation of the true auricular septum, unless indeed a small

filamentous band lying on the ridge of separation between the
two auriculo-ventricular openings could be regarded as the re-
mains of the primary septum of Born.

It is clear that in this case we have to do with two sets of
phenomena, those due to the congenital anomalies of develop-
ment and those resulting from inflammatory changes in the
valves. Some of the conditions credited to inflammation may,
of course, have originated during intra-uterine life, but the
author does not think that this is likely, as there were no symp-
toms of circulatory disturbance at birth, while, on the other
hand, there is clear evidence in the granulations on the mitral
and tricuspid valves of endocarditis of recent date.

Credé's Collargol Treatment.—Sztahovszky (*Pest. Med.-
Chir. Presse,* Vol. 39, No. 17), used collargol in the form
of a fifteen per cent ointment in two cases of meningitis,
applied three times a day after thorough cleaning of the
skin, in order to establish hyperemia. One case (six years
old) promptly recovered; the other (four years old) died.

In severe cases and in adults the author uses a half-per-cent
solution of collargol which he injects into a vein in the arm, ten
cubic centimeters being given once daily or less often, as re-
quired. In sepsis, pneumonia, influenza and tuberculosis the
treatment has proven valuable.

**Chronic Hydrocephalus, with Report of a Case Associated
with Gigantism.**— George G. Temple (*Albany Med. Annals,*
May, 1903) says that according to the latest statistics chronic
hydrocephalus begins at birth or within the first six months of
life in eighty per cent of cases; sometimes it occurs before
the end of the first or second year; rarely in adolescence; still
more rarely in adult life. Three different states, in regard to the
size of the head have been described as existing in this affection.
1. When the head is smaller than natural. 2. When the head is
natural in size. 3. When the head is abnormally enlarged. The
first are cases of microcephalism, still classed erroneously by
some authors under chronic hydrocephalus; erroneously, inas-
much as the fluid found is simply compensatory to the atrophied
brain. The second cannot with any positiveness be recognized
as chronic hydrocephalus during life. The third state, abnormal
and typical hydrocephalic enlargement of the head is the one most
commonly met with; in fact, we need this objective sign to arrive
at a positive diagnosis, as pressure symptoms alone do not form a
sufficiently precise combination to enable us to do more than have
a suspicion of chronic hydrocephalus. The enlargement of head
may be globular, pyramidal or cone-shaped, the latter mostly
found in adults, where primary hydrocephalus was arrested.
Etiology. The predisposing causes of chronic hydrocephalus are
lead poisoning, tuberculosis, alcoholism, syphilis in the parents,
and rachitis. Extreme overwork and worry in the mother has
been claimed to be a factor in determining the occurrence of
primary hydrocephalus. In cases occuring in late childhood or

adult life it is due, usually, to meningitis, or other organic diseases such as a tumor obstructing the venæ galenæ or sylvian aqueduct. *Secondary* chronic hydrocephalus has been attributed causatively to an attack of tubercular meningitis. Another cause mentioned is complete closure of the cerebro-spinal opening by a fibrous membrane. *Pathology.* The lesions found post-mortem are enormously enlarged ventricles and flattened convolutions. The lining membrane of the ventricles is much thickened and tougher than normal. The porta are distended. The brain rarely shows signs of atrophy, rather the reverse. *Symptoms.* The disease may be ushered in by fretfulness and irritability, or the head may slowly enlarge, often without further symptoms. Chronic hydrocephalus has been known to occur after a fall. In cases associated with tumors, we are apt to have vomiting; obstinate and paroxysmal in character, and continuous head-ache marked with exacerbations. Convulsions and paralysis of one or more ocular muscles, also optic neuritis, often with resulting atrophy, may occur. Loss of memory, dullness, great tendency to sleep, weakness, paralysis of limbs, blindness—*rarely* deafness —loss of smell and impairment of other senses may all occur. The appetite is *good* as a rule. *Diagnosis.* No error is liable to occur in marked cases, but, when effusion is moderate, and ossification has taken place before its establishment, the diagnosis is rather difficult. Cases of chronic *external* hydrocephalus are of rare occurrence, and may, as a rule, be differentiated by careful examination and observation. *Prognosis.* Within two or three years from the onset of the disease, vomiting, coma and convulsions appear, and death ensues from exhaustion, although some few cases have been known to recover. *Treatment.* Internal treatment, as we all know, is of little benefit, as a rule. Iodide of potash, where not especially contra-indicated, has proved to be of undoubted value. Strapping with adhesive straps, although fallen into disuse for a time, has again been employed in some cases with doubtful results. Tapping of the lateral ventricles through the anterior fontanelle gives but temporary relief. If done sufficiently early though and repeated at intervals, with subsequent strapping, a certain amount of success may be expected. Of four cases, in which I employed this method, two died; L. S., age one and one-half years; O. F., age two years; one, J. B., is living, thirteen years old and virtually helpless, with a head enormously enlarged (operation performed ten years ago); the other, F. M., operated on nine years ago, is nineteen years old, very intelligent and to all appearances, well. One of the cases which died, O. F., was an external hydrocephalus, due to atrophy of the brain and the operation was only palliative. Puncture between the third and fourth lumbar vertebræ has been productive of good results, and is indicated where a previously healthy child rapidly develops distinct symptoms of chronic hydrocephalus with consequent bodily and mental impairment. Where relief from intense head-aches, clonic convulsions, strabismus,

etc., is necessary and a cure seems probable, paracentesis should
be tried. Incision with drainage has not proven very successful
thus far, although in 1902, Montini reported the case of a child
four years of age, where drainage was instituted for seven days,
the child recovering from convulsions and pain and only slight
strabismus remaining. The child was apparently well one year
later. Trephining with tapping has been employed in several
cases with but indifferent results. If in any given case we could
be reasonably certain that it belonged to the idiopathic variety,
and was not due to a complete closure of the cerebro-spinal open-
ing, we might operate with greater chances of success. Still *all*
cases of chronic hydrocephalus are so grave that the question of
an operation should always be entertained when the sutures being
open and the patient rapidly growing worse, death seems immi-
nent. The author reports an interesting case in which in addition
to the hydrocephalus there was gigantism, not acromegaly.

Congenital Dislocation of the Shoulder.—Charles Greene
Cumston (*Am. Jour. Med. Sci.*, June, 1903) states that this con-
dition is of infrequent occurrence, and gives the history of the
subject, as far as he has been able to obtain it, and the various
theories held as to its etiology which still remains obscure. The
pathological lesions found in congenital dislocation of the
shoulder are pretty much the same in all the recorded cases, and
what is most striking is the arrest in development of that portion
of the skeleton upon which the muscles take their insertions. The
muscles too, are atrophied? The capsule of the joint is intact,
and its insertions are normal. It is only somewhat relaxed, very
distended, and occasionally considerably elongated. The prin-
cipal character which will allow one to distinguish a congenital
origin from an accidental affection is that it is usually easy to
reduce, but difficult to maintain reduced, while in an ac-
quired dislocation reduction is almost always impossible,
but if it can be accomplished the parts are easily retained
in place. In congenital dislocation the joint is perfectly
free and all symptoms of an inflammatory process are lacking.
In congenital relaxation of the articular ligaments the dislocation
is not present when the limb is in repose, but it is produced when
any slight effort to use the arm is made. What distinguishes most
positively a congenital dislocation of the shoulder from obstetrical
paralysis is the preservation of the functions of all the muscles of
the joint and their distinct excitability to electricity. The author
proceeds with the differential diagnosis from syphilitic pseudo-
paralysis, paralysis of cerebral origin, and when the child has
attained several years of age from acute articular rheumatism
tubercular infection of the shoulder, traumatic dislocations, prog-
ressive spinal amyotrophy, progressive muscular atrophy and
infantile spinal paralysis. In the treatment of congenital disloca-
tion of the shoulder, the author holds that surgical interference
alone will give satisfaction in the vast majority of cases. He de-
scribes the technique of various operative procedures. The

Phelps incision was used by him in a case reported, and the capsule opened. The head of the humerus presented only a slight degree of atrophy, and the same was true of the glenoid cavity. After breaking up some adhesions the dislocation was readily reduced and the redundant capsule freely resected, after which it was closed with catgut sutures. A plaster dressing was applied with the elbow held back which was removed at the end of three weeks. The result was most satisfactory.

Congenital Tumors of the Kidney.—Lawrence W. Strong (*Arch. of Ped.*, May, 1903) says that the most striking thing about malignant tumors of the kidney in general is that although they develop in the kidney substance their structure and elements are totally unlike those of the kidney itself. This applies both to the adrenal growths and to the congenital tumors, which two classes constitute by far the large majority of all renal tumors. Characteristic of these tumors is their occurrence in the first years of life. Heinecke, who collected 138 cases found that the second and third years were most affected, and that from the sixth to the ninth year only single cases were reported. No accredited case appears later than the ninth year. Sex has no especial influence and the tumors are as likely to occur on one side of the abdomen as on the other. The existence of the tumor is first made evident by increasing size of the abdomen without renal or other symptoms; the tumor grows very rapidly and produces relatively little cachexia in comparison with its size. The mechanical bulk and weight, by interfering with digestion and nutrition produce marked emaciation; cachexia from toxic absorption appears late. There is but a slight tendency to the formation of metastases. These tumors always develop inside the kidney, the kidney tissue proper, however, does not take part in the process, but becomes compressed and atrophic. The tumor develops from the pelvic region, often splitting the kidney at this point, so that what remains of the kidney sits on the tumor like a flat cap. The author reports two cases. His conclusions are the following: (1) Histological comparison shows that these tumors resemble the embryonic Wolffian body. (2) There is a continuous system of tubules and their derivative cell masses throughout the tumor. (3) The tubules are the primary mesothelial elements and the cell masses are derived from them by retrograde metamorphosis. (4) The histological characteristics vary with the age of the part; the pelvic region is oldest and shows complete differentiation of mesenchyme and mesothelium, the metastases are youngest and show, not transitions between mesothelium and mesenchyme, but an embryonic condition where all cells are alike. (5) Bilateral tumors are coincident and not metastatic. (6) Metastases may occur through the lymph stream as well as through the blood stream.

Acute Ependymitis in an Infant.—J. A. Coutts (*Lancet*, April 25, 1903), says that cases of primary acute ependymitis leading to the formation of pus in the cerebral ventricles are of

such exceptional rarity as to merit that each one should be put on record. He reports the case of an infant of three months which had been fairly healthy until the onset of this illness, which occurred two days before its admission to the hospital, with diarrhea and vomiting. On the day of admission the child had a convulsive attack which lasted about fifteen minutes, and was preceded by apparent pain in the abdomen. The patient was found to be a small, pale and rather badly nourished infant. The eyes were bright and the pupils were equal, and convergent strabismus was strongly marked. The breathing was irregular, both in rhythm and in depth. The pulse varied extremely in force and in rhythm, becoming faster when the breathing was quicker, and very slow and almost intermittent when a period of apnea supervened. There was no definite convulsive attack, but the infant was restless and had irregular spasmodic tremors of the hands. The legs were drawn up on the abdomen and were slightly flexed. Kernig's sign was not present. The knee-jerks were very active. There was slight retraction of the head, but no marked rigidity of the post-cervical muscles. The anterior fontanelle was tense and bulging; the sagittal and frontal sutures were widely open. The symptoms varied but little till the death of the infant. To judge from this one case, the main features of acute ependymitis in infants would seem to be acute onset with vomiting, a persistent temperature of the hectic type rising towards the end of the illness, very early loss of consciousness, very frequent fits dating almost from the onset, and early and persistent bulging of the anterior fontanelle, along with convergent strabismus. The differential diagnosis between such cases and those of meningitis is practically impossible. At the autopsy all appeared normal except an extreme bulging at the base of the brain in the region of the optic commissure. As soon as the third ventricle was opened a large quantity of thick, turbid fluid poured out, and also large flakes of lymph and pus. All the ventricles were extremely dilated and contained similar fluid and pus. The fluid from the ventricle was not offensive. The pus was very thick, whitish green, and very fibrinous. The dilation of the lateral ventricles was so extreme that the brain tissue only formed a very thin outer wall to the cavities of the ventricles which were dilated in their whole course. There was a thick inflammatory deposit attached to the ependyma of the ventricles which could be scraped off, leaving a rough surface beneath with great dilatation of the veins coursing along the wall of the ventricles. Also a few scattered pin-head hemorrhages were seen in the walls of the lateral ventricles. The pus was examined bacteriologically; cover-slip preparations showed large numbers of cocci arranged without exception in the form of large chains. Cultures were made on most of the ordinary media. In every case small colonies grew similar in every respect to those of members of the streptococci family. Cover-slip preparations of the pus were made from the growths on the various media, and in every specimen examined cocci in

the form of very long chains were the characteristic features. The coccus stained by Gram's method. There was no capsule to be seen to the cocci from the original specimen of the pus. No inoculation experiments were made with the organism. There was no cause discovered for the ventricular infection.

Birth Palsies.—M. H. Bochroch (*Ann. of Gyn. and Ped.* Report of Phil. Obstet. Soc., June, 1903), says that the obstetrician does not always take into consideration the accidents to the child which so frequently eventuate in serious and permanent palsies. These injuries are not always evident at birth; very frequently they do not receive attention until years after, and then at the hands of a neurologist whose function is usually limited to making the diagnosis of a permanent and hopeless lesion. Birth palsies occur more frequently in the practice of the general practitioner than in the hospitals and wards attended by professional obstetricians. In brain lesions, such as hemiplegias, microcephaly, porencephaly and hydrocephalus, forceps are as a rule, used too late rather than too soon; prolonged pressure such as occurs in primiparæ is more often the cause of this deplorable state than the improper use of the forceps. In cases of cerebral hemiplegia or cerebral diplegia, the most that can be accomplished is a tedious and only partially successful attempt at education, and some training of the paralyzed limbs. It would seem that if in every child in whom at birth there are present symptoms of asphyxiation following dystocia and in whom there has been prolonged pressure and constriction of the head, it would be a justifiable procedure to rapidly make an opening of moderate size upon either side of the parietal region; by such a procedure the effused blood escapes, or could be washed out with a normal salt solution. Erb's palsy is detailed, stress being laid upon the avoidance of the various procedures which predispose to this condition. The treatment of brachial palsy resolves itself into the employment of massage and electricity. The paralyzed arm should not be allowed to hang helplessly by the side, but should be supported in a sling or in a Velpeau bandage. In some of the cases nerve suturing may be indicated.

The Blood of Healthy Children.—Karnizki(*Archiv für Kinderbk.*, Vol. 36, No. 1 and 2), made repeated and controlled counts of the blood in healthy village and city children in and around Kiew, in Southern Russia. Thirty-eight counts were made in infants and eighty in older children. The average number of red cells per cubic millimetre was found to be 5,583,000 during infancy and 5,892,000 during later childhood. The individual variations are not great. The specific gravity is 1.0566 for infants and 1.060 for children over one year old. For boys the average is 2.3 pro mille greater than for girls. The average number of leucocytes during infancy is 12,628, while in older children it is 7,543. The leucocytes are larger in the blood of healthy children than they are in that of adults, the reason being that the nucleus is larger. The leucocytes vary in their staining

capacity, some taking an intensely blue color, and some a lighter shade. The eosinophiles vary in size and form, and eosinophile myelocytes are also found. Nucleated red blood cells are present in infants up to the age of seven and one-half months. They are of two varieties: those with sharply staining nuclei and a cell protoplasm which takes the color of the hemoglobin of the non-nucleated red corpuscles, and those cells which are larger and stain less deeply as to their cytoplasm, while the nucleus has a radiating network of dark violet upon a paler blue ground.

During infancy the lymphocytes average 57.8 per cent and the neutrophiles 29.3 per cent. Transition forms decrease in number with the age of the child, as does the total number of leucocytes. The eosinophiles vary irregularly in numbers during infancy. The neutrophiles increase absolutely at the end of the first year, then fall relatively until the end of the fourth year, when the increase is again absolute. The lymphocytes exceed the neutrophiles until the fourth year. From the fourth to the eighth years the neutrophiles are more numerous, though not markedly so. From the age of eight to fifteen years the neutrophiles are decidedly more numerous than the lymphocytes.

Chronic Diffuse Myocarditis in Children.—Zuppinger (*Archiv f. Kinderbk.*, Vol. 35, No. 5 and 6), details two cases, the elder that of a girl of twelve years who developed myocarditis after an attack of diphtheria. She died fifty days after the onset, of diffuse bronchitis and bronchopneumonia. The younger case was a boy of ten years whose myocarditis dated from an attack of measles four years before, and croupous pneumonia one year later. The cardiac symptoms included a systolic and a diastolic murmur, due to relative insufficiency of the mitral and aortic valves caused by weak muscular contraction. Should the tone of the muscle increase and the murmurs disappear, diagnostic errors might easily occur. Symptoms of congestion of the liver, lungs and intestinal tract were pronounced in the second case.

The prognosis of chronic myocarditis in children is bad, recovery being impossible. The course is slow, but is often shortened by intercurrent diseases. Sudden death due to rupture of the heart may occur. Therapeutically absolute rest in bed, attention to diet and to the general strength must be the means of keeping the heart in a state of compensation. The process cannot be prevented from progressing.

Tuberculosis of the Placenta.—Ernst Runge (*Arch. f. Gyn.*, Bd. 68, H. 2), places on record a case of tuberculosis of the placenta in a woman who died when four months pregnant. The autopsy showed generalized tuberculosis, including the decidua and chorionic villi. The question whether the disease had been transmitted to the fetus was not proven by examination of the latter as an uninjured specimen was desired.

ORIGINAL COMMUNICATIONS.

ANTENATAL RIGOR MORTIS.[1]

BY

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IN presenting this paper for your consideration, I am conscious of the fact that it is not based upon any scientific experiments on my part, but I ask your indulgence because of the fact that the two cases which I report are the first to be recorded in this country.

That we may the better understand this subject, I shall discuss rigor mortis in its postnatal state, that is, in the body which has legally lived. It is to J. W. Ballantyne I am indebted for much of my information upon the subject. In his work "Teratology" he furnishes a great deal of valuable material and complete historical notes.

Rigor mortis is to be considered an unfailing sign of death and, according to the now almost generally accepted theory of Brücke, which has been proved by experiment, it results from a coagulation of muscular albumen. This coagulation occurs with a shortening of the muscle fibers and produces no outward effect. In other words, there is no displacement or movement of the limbs, or

[1] Inaugural Thesis, presented to the Chicago Gynecological Society, April 17, 1903.

of the joints; this is due to the fact that the antagonistic muscles are undergoing the same changes. Nysten (*Recherches de Phys. et de Chimie pathol.*, Paris, 1811) and J. Bernstein (*Lehrbuch der Phys.*, 1894) look upon rigor mortis as a last contraction of a dying muscle, but according to Bernstein it is due more to the pouring out of the myosin than to the shortening. Next to the coagulation of myosin is a chemical condition to be observed. In the living passive muscle we find upon cross section a reaction neutral or slightly alkaline; in the active muscle we have the formation of lactic and phosphoric acid and the occurrence of an increased amount of CO_2 (Landois, *Lehrbuch der Phys.*, 1900). L. Hermann (*Lehrbuch der Phys.*, 1900) and Du Bois Reymond have shown that upon cross section the reaction of rigor mortis muscles is always acid, containing lactic acid and CO_2, and if we compare the chemical constituents of the working muscle with those of a muscle in rigor mortis, we will find a remarkable similarity. In both cases the muscle is shortened and thickened, and in either case heat is produced. The amount of CO_2 furnished is, according to L. Hermann, in exact proportion to the amount of muscular exercise. The only difference we know in the two conditions is the fact that in the one the contractions after a few moments cease, while in the other case, through the coagulation of the muscle albumin irreparable damage is done. In the first case, it may be a fact that the substances produced, such as the acids and perhaps some unknown products, are carried off by the circulation (L. Seitz).

While the etiology may not be sufficiently proved there are a few facts known to us which influence the condition. For instance, we know that certain experiments hasten or diminish rigor mortis; we know that the injection of lactic acid and CO_2 in the beginning of rigor mortis will hasten it. We know also that heat quickens the condition and cold retards it. Its appearance and duration are influenced by age, temperature, and the mode of death. In cases of long illnesses or violent deaths which have been preceded by muscular exhaustion, it appears and disappears early. A fluid medium does not influence it in any way (Brown Sequard). The greater the muscular development and the smaller the amount of antemortem fatigue, the longer the rigidity will last. When a joint, stiff with rigor mortis, is forcibly bent, the stiffness does not return, if the rigidity has been well established; but it will return if the rigor has not been complete.

A period of muscular flaccidity and contractility constitutes the

first stage in the cadaveric change. This period of softening of the muscles is not to be confounded with the cadaveric softening that follows rigidity. During the period of softening the muscles are easily excited to contraction by the interrupted current. In this respect they agree with the passive living muscle. The second stage is characterized by a cadaveric rigidity which begins as soon as elasticity and muscular irritability cease, and it lasts as a rule until putrefaction begins. During this stage the muscles do not change their positions but remain exactly as they were at the beginning. An example of this is seen in the soldier killed after an exhausting march and found lying with his gun in his hand ready to fire. This cataleptic condition proves that rigor mortis can come on instantaneously and that it does not entail a change of position. It has been claimed that rigor mortis is dependent upon the nervous system. This has been disproved by dividing the nerve supplying certain muscles, and also by the removal of the entire brain and spinal cord. In cases of decapitation the condition was not altered. The time of the beginning and the violence of rigor mortis is dependent upon the development and strength of the muscles.

The fetus is endowed with muscular structure the same as the child or adult, and is subject to many of the diseases of later life. Certain of its muscles are in constant use for weeks before birth and respond to external stimuli. This being so, and in view of the foregoing facts regarding rigor mortis in the adult body, what reason have we for believing that it does not or cannot exist in the dead fetus? Proof that it does and that it has been recognized for many years will be shown in my report of cases.

History.—The first recorded case of antenatal rigor mortis was that of Chowne, *Lancet*, 1840. It was not seen by him until one hour subsequent to delivery, but from the description it was an undoubted case. The next case was reported by Schultze in 1857. This was following a long labor of three days, the child being dead but rigid. (*Vollkommen leichenstarre.*) Curtze's observation was published in 1866, and in 1870 Tourdes noted that in Strassburg cadaveric rigidity had been detected in twin fetuses at the fifth month of intrauterine existence. In 1870 a series of cases was reported at a meeting of the British Medical Society. Griggs, P. A. Young, Ashburton Thompson and Parkinson described cases and with the exception of Thompson were of the opinion that they were in true rigor mortis. The latter, however, took the ground of a possible tetanic spasm occurring in articulo mortis and persist-

ing after death.   Bailly, in 1876, reported rigor mortis in a twin pregnancy.   In 1877, Martin reported two cases.   At about this time Pinard in an article upon the fetus (*Dictionnaire Encyclop. des Sciences Méd.,* 1878) announced his conviction that the rigidity was truly of the nature of rigor mortis and affirmed that its presence might make the delivery of the infant difficult.   In 1880, L. W. Müller and Dagincourt reported cases, and the latter wrote an important thesis upon the subject.   During the next few years followed reports by Boxall, Jones, Davidson, Stumpf, Sanger, Dohrn, Feis, Langé and Steinbuchel.   In 1894 Ballantyne reported one case and in 1902 we have three cases reported by Seitz.   J. H. Evans in the *Australian Medical Gazette* for November, 1900, gives two cases.   Dr. Evans' cases are of interest because of the fact that an absolute death of the fetus had been diagnosed in each case, and also that the stiffness complicated the delivery.   In each of his cases there had been a severe hemorrhage with a premature detachment of the placenta.   In the case of Griggs the labor was at term with a profuse hemorrhage.   The time of the hemorrhage was one and one-half hours previous to the birth of the fetus.   The rigor mortis was just appearing.   In a case reported by O. Feis, the woman was a septipara in labor at term with uterine hemorrhage.   The head was born with a delay of the body.   Fetal movements were noticed 11 hours before birth.   After a forcible delivery with unmistakable signs of rigidity of the body which became more pliable the rigidity returned, proving that the rigor mortis was in the early stage.   The postmortem findings showed ecchymoses in the lung, pleuræ, and pericardium.   Aspirated mucus in the trachea and bronchi.   Liver, spleen, kidney and brain were congested.

In the case of M. Lange the woman was in labor shortly before term, there were profuse hemorrhage and strong fetal movements and fetal heart tones.   Three hours later the heart tones were not heard.   The fetus was born in rigor mortis, in the first stage.   The postmortem findings were the same as in the case of O. Feis.

Case of Ashburton Thompson (*Brit. Med. Jour.,* 1874).   The patient was 20 years of age, primipara, in prolonged labor with a forceps delivery.   The fetal movement had not been heard for 72 hours.   He reports that the rigor mortis was just passing away.

L. W. Miller reports a case of prolapse of the cord and forceps delivery.   The fetal movements were noted thirty minutes before birth, and the pulsation in the cord one-half hour before.   The rigor mortis was just appearing.

I do not deem it necessary to enter into the details and give a full description of the cases to which I have referred in the literature. But as an example which presents a similarity to the reports which have been given of the foregoing cases, I will merely report three by Ludwig Seitz and the two which have come into my own practice.

Ludwig Seitz.—CASE I.—Quintipara, 38 years old, eight months pregnant. Premature detachment of a normally situated placenta. Hemorrhage very severe. Four hours before the arrival of the physician, the mother detected motion ; the heart tones not observed. After the rupture of the membranes, with the woman in collapse, the child was delivered by forceps. It was very cyanotic and rigid. The blue appearance of the child stimulated the midwife to practice artificial respiration. In this case the probable time of the death of the fetus was at the time of the separation of the placenta and the profuse hemorrhage, this being about four hours before birth.

CASE II.—Primipara, 25 years old, meconium and slowing of heart tones following a prolonged labor. Chloroform had been administered. The head in the first position. The child was soon extracted and the rigor mortis was very pronounced in the shoulder. A few moments later, another smaller fetus was born dead, but not in rigor mortis. One-half hour before the completed extraction the heart tones were positively heard.

CASE III.—Primipara, 25 years of age. Before coming to the clinic, the forceps had been applied. Upon admission the heart tones were not heard, and the contracting ring was at the umbilicus. Craniotomy was performed and child extracted without difficulty. Both arms and shoulders were stiff, and the lower extremities slightly so. All the muscles, however, were somewhat softened by manipulation, but in a few minutes they were in rigor mortis. The time that death probably occurred was during delivery as the heart tones ceased then. Albumin in the urine, fever, loss of blood, or other factors that predispose to rapid occurrence of rigor mortis were absent.

The cases of the writer are as follows. CASE I.—Mrs. R., Quadripara, aged 35, in labor near term. A history of a hemorrhage for 12 hours which when seen by me was very excessive. The child in a transverse position with the hand prolapsed, the cervix admitting four fingers. As soon as possible, version was performed. While operating I found it somewhat difficult and remarked upon the extreme rigidity of the child. Having turned

and grasped a foot, I was still aware of an abnormal amount of rigidity. There was a gradual relaxation as I brought the body into the pelvis, and when the child was born dead, the lower extremities, while not stiff, were still slightly so and the arms quite markedly flexed and rigid. The rigidity did not return to any marked degree while I remained some two hours. In this case the death was undoubtedly due to the hemorrhage which had existed more or less all day. The fetal movements had not existed for ten hours, and no attempt had been made to listen to the heart sounds.

Case II.—Mrs. V., 30 years of age, primipara, in labor at term. Pelvic measurements normal. Position, right occipito anterior. The contractions of the uterus were not hard for the first 36 hours, and there would be intervals of an hour or more without a pain. The head was still high, the os admitting one finger, and the cervix about two centimeters in length. Pain soon commenced to be more regular at intervals of five minutes and at the end of 12 hours examination showed the cervix effaced and the os about two centimeters. The heart tones were good at 140. The bag of waters was presenting. The membranes at this time were accidentally ruptured, and five hours later the heart tones could not be determined and pains rather weak with but little advancement of the head. The os dilated to about the size of a dollar. After waiting until 11 P. M. I decided to dilate and extract. While I had made a diagnosis of the death of the fetus I nevertheless decided to make a forceps extraction. The head came over the perineum readily, but the shoulders delayed the delivery, and when the child was extracted the condition of rigidity was pronounced. I cannot describe the delivery of such a case in any better way than to liken it to the extraction of a half frozen fetus from a mannikin. Anyone who has attempted such a delivery will appreciate the comparison. In this case the child was large, very muscular and well nourished and we would naturally expect from such a condition that the rigidity would not have been so pronounced so soon after death. The rigor was in the second stage and remained so, during the next two hours while I remained.

It has been stated that if rigor mortis does occur in the fetus it in no way complicates the delivery. The cases of the writer, and also those reported by others, which I found in looking over the literature, prove the contrary to be the fact.

It will be noticed that my cases were at term, and it has been stated that rigor mortis does not occur in immature fetuses.

Casper in 1861, in *Forensic Medicine*, writes: "I have never observed a cadaveric stiffening in the immature fetus. Even in cases of mature new-born infants and little children, it is feeble and transitory." There is no reason why it cannot occur even in premature fetuses, and that it does so we have a sufficient proof. Long before the viability of the fetus its muscles are in use.

In our reports of cases we find as a cause of death of the fetus conditions which I will summarize as follows: In 13 labor was complicated by hemorrhage, viz.: in 4 placenta previa, in 8 accidental hemorrhage, in 1 varix.

In 2 there was eclampsia, in 5 a contraction of the pelvis and rigidity of the cervix, in 2 there were twins, in 1 acute peritonitis, in 1 prolapse of the cord.

In five of the reported cases the labor was said to have been complicated by the extreme rigidity of the fetus. In a case reported by O. Feis the woman was a septipara in labor at term with uterine hemorrhage; the head was born with a delay of the body; fetal movements were noticed 11 hours before birth. After a forcible delivery with unmistakable signs of rigidity of the body which became more pliable the rigidity returned, proving that the rigor mortis was in the early stage.

Granting that rigor mortis occurs in the fetus the question might naturally be asked, How can the fact be explained that the condition is so seldom recognized? In answer to this I will say that often the fetus has gone through the rigid stage before birth; again, owing to the feebleness of the muscles rendered so by disease of the mother or the fetus, the rigor is too feeble to attract the attention of the physician. Again the fetus may be born before the rigor mortis commences. In this case the diagnosis of death has been made, and no further thought is given to it. Usually the death of the fetus occurs in the latter stage of the labor, and delivery soon follows instrumentally or normally. Only in exceptional conditions will the physician look for rigor mortis. He should be able to diagnose it by stages, for instance, in the first stage the muscle appears somewhat stiff and waxy, and yet capable of motion. The myosin shows a jelly-like consistency and is still pliable. This is a stage which is likely to be overlooked. In this condition the joints may be moved and the muscles made soft, just as they would in the older body. Still they will return again to the rigid state. Should the birth occur during the first stage or be induced by an operative procedure the condition is not usually noticed; the physician naturally gives his attention to the living pa-

tient rather than to the dead child.   L. Seitz, in the case reported
above, calls attention to the fact that had he not made the inquiry
regarding the stiff arm and general rigidity of the child, not one of
the physicians present would have noticed anything unusual, al-
though the child was in a deep rigor.

The passage of the child through the birth canal may so soften
the fetal musculature and joints and so alter the condition, even
though it be one of advanced rigor mortis, that it may not again
resume rigidity.

Cases have been reported where a physician is said to have prac-
ticed artificial respiration upon a child blue and rigid, with the
fetal heart beating, although the child was dead and in rigor mor-
tis.   Griggs reports such a case, and while practicing artificial
respiration, the upper extremities were in pronounced rigor mor-
tis.   It is said that mistakes in diagnosis of a dead fetus have been
made because of the heart beat.   Brown-Séquard states that in
moribund patients who have suffered protracted illnesses active
rigor mortis occurs before the cessation of the heart's action.   In
the case of the fetus apparently born dead, it is not rare to detect
the heart beat for an indefinite period without any other signs of
life.   I have repeatedly heard the heart after the death of the child
for a variable length of time, in one case, one hour and a quarter
after the birth without a respiration.   T. W. Engelmann has
shown that the fetal heart has a greater automatic musculature
independent of its nerve ganglion, and that fetal hearts removed
from the fetuses of animals will beat indefinitely.   In the case
of Opitz the heart beat two hours after pronounced death.
Neugebaur reports ten cases of post-mortem heart beat.   L. Seitz
and O. Feis both report cases where fetal heart beat was heard in
rigor mortis.

As a further proof that rigor mortis can and does occur in
fetuses, we have the animal experiments by Tissot (*Recherches
sur l'excitabilité des muscles rigides, Arch. de Phys. normale et
path.*, 1894).   These experiments prove conclusively that such a
condition does exist.

My paper deals with a condition which usually results from a
pathologic state, either in the mother or the fetus, which might or
might not have been diagnosed had a clear conception of the
physiology of pregnancy and the physiology of the fetus been
known to the physician.   I do not pretend to say that all pathologic
states of pregnancy and labor can be recognized, but a higher con-

sideration for the value of fetal life will be the means of saving many children that would otherwise have been still born.

From a medico-legal standpoint it must be admitted that rigor mortis can occur before birth as well as after. A case is cited of a woman tried for infanticide; because the infant was found in rigor mortis it was decided that the child had legally lived, and the woman was found guilty of murder. The existence of a new-born dead infant in rigor mortis is not necessarily a proof of a life apart from the mother, that is, of an independent existence. It does prove, however, that the fetus was alive shortly before or during birth.

In consideration of the foregoing facts and reports, I contend that post-mortem changes occur in the dead fetus as well as in the dead adult body and that the condition in each is regulated by the same laws. Furthermore, that the condition often complicates delivery by interference with its normal mechanism.

LITERATURE.

1. CHOWNE, "Case of Very Early Cadaveric Stiffening." The Lancet, II. 1840-41, p. 199.
2. SCHULTZE, Deutsche Klinik, No. 41, 1857.
3. CURTZE, Zeitschrift für Med. Chir. und Geburtsh., p. 261, 1866.
4. GRIGG, W. C., "Rigor Mortis in an Infant at Birth." Brit. Med. Journal II., 1874, pp. 493, 586, 707.
5. THOMPSON, J. A., "Rigor Mortis in an Infant at Birth." Brit. Med. Jour., 1874.
6. YOUNG, P. A., "Rigor Mortis in an Infant at Birth." British Med. Jour., 1874.
7. PARKINSON, C. H. W., "Rigor Mortis in Still-born Infant." British Med. Journal, 1874.
8. BAILLY, M. Dystocie foetale (Archives de Tocologie, III, p. 641, 1876).
9. MARTIN, A. "Ueber Geburtserschwerung durch missgestaltete Früchte." Zeitschrift für Geburtshulfe und Gynäkologie, I., p. 55, 1877.
10. DAGINCOURT, E. "De la rigidité cadaverique du foetus au moment de la naissance." Thèse, Paris, 1880.
11. BOXALL, R. "Gestation: Accidental Hemorrhage. Death of Foetus in Utero; Arrested Labor from Rigor Mortis of Foetus." The Lancet, II., 1884, p. 60.
12. JONES, B. "Dystocia from Rigor Mortis in the Foetus." Brit. Med. Jour., I., 1886.
13. STUMP, F. Uber puerperale Eklampsia, Arch. für Gyn., 1886.
14. SANGEN, Arch. für Gyn., 1886.
15. DOHRN. "Kaiserschnitt nach dem Tod, Muskelstarre der moribund extrahirten Frucht," 1886.
16. FEIS, O. "Uber intrauterin Leichenstarre," Arch. für Gyn., 1894.

17. Lange, M. "Über intrauterin Leichenstarre," Centralb. für Gyn., 1894.

18. Ballantyne, J. W. "A Case of Rigor Mortis in the Foetus." The Trans. of the Edinburgh Obstet. Society, Vol. XX., 1894-5, p. 20.

19. Tissot, J. "Recherches sur l'excitabilité des muscles rigides." Arch. de Physiologie normale et Pathologique, 1894.

20. Seitz, L. Klinische Vorträge, November, 1902.

21. Winckel, Lehrbuch der Geburtshülfe.

22. Zweifel, Archiv. f. Gyn., Bd. XII., s. 235.

23. Fehling, Archiv. f. Gyn., Bd. IX., s. 313.

24. Gusserow, Arch. f. Gyn., Bd. XIII., s. 1.

25. Stumpf, Verhandl. der deutschen Gesellschaft f. Gyn., München, 1886.

26. v. Stembuchel, Wiener med. Wochensch., 1895.

27. Ed. Hoffman, Lehrbuch der gerichtlichen Med., 1884.

28. L. Hermann u. Bierfreund, Arch. f. d. gesammte Phys., 1888.

29. Landois, Lehrbuch der Phys., 1900.

30. L. Hermann, Lehrbuch der Phys., 1900.

31. J. Berustein, Lehrbuch der Phys., 1894. s. 368.

32. Paddock, C. E., vide supra.

33. J. H. Evans. Australian Med. Gazette, 1900.

THE RELATIONS BETWEEN PERITONEAL ADHESIONS AND THE FUNCTIONATING UTERUS.[1]

BY

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When one considers the anatomical relations of the abdominal and pelvic viscera, and sees how largely the physiological functions depend upon the individual and collective mobility of the various organs, it is at once apparent that any factor which restrains or alters this mobility will produce a definite local alteration of the function of the part or parts affected, and through the extensive nervous relations exercise a more or less pronounced effect upon the entire system.

Thus adhesions of one portion of the peritoneum to another, or of one organ to another, will call forth in many instances such varied general and local symptoms, that a diagnosis may be ob-

scure and easily confused with conditions which are not present, as cases in literature abundantly attest.

Numerous writers have studied the conditions which attend post-operative adhesions in the peritoneal cavity, especially with reference to the functions of the uterus, and a very considerable literature attests their opportunity and industry. It seems desirable therefore to limit the scope of this paper very narrowly to a study of the effects of those adhesions arising from inflammatory processes within the peritoneal cavity, upon the uterus, whereby that normally mobile organ is bound by more or less firm bands to neighboring organs or to the abdominal or pelvic parietes and passes through its manifold expressions of activity and repose under the disadvantage of a variable degree of fixation.

Inasmuch as 80 per cent (Winckel) of the female bodies which come to the post mortem table show the effects of peritoneal inflammation in some form, it seems remarkable that cases of functional interference have not been reported more frequently.

Many factors combine to place the uterus and its vicinity first in point of susceptibility to inflammatory adhesions. Its varied functional activities, its rapid changes in form, size, position and consistency—its proximity to viscera containing highly infectious material, and the open communication which is afforded by the tubes between the pelvic cavity and the vagina with its manifold possibilities for infection, all unite to produce a predilection for adhesions which some authors claim is as high as 75 per cent.

The explanation of the rarity in literature of these cases complicating and interfering with the functions of the uterus lies partly in a failure to recognize the conditions intra vitam, and partly in that a large proportion of the adhesions are destroyed, or their effect neutralized by the phenomonal changes which the pregnant uterus undergoes. Then, too, death from other and more evident causes, in many cases obviates the necessity for a post mortem.

When, therefore, old peritoneal adhesions are found binding the uterus to the rectum, the small intestine, the bladder, the abdominal wall, the omentum or vermiform appendix, it is not irrational to look for local and general symptoms due to fixation of mobile organs, and traction and pressure effects between adjacent organs.

It is a relatively common occurrence to find adhesions between the rectum and uterus and ovaries, which locally produce changes in the peristalsis and nutrition of the rectum, such as catarrh, diarrhea, stricture, coprostasis, and even paralysis, ileus and death.

Conversely, the healthy nervous system may temporarily escape, but after an illness or some other depressing factor, the symptoms due to irregularity of circulation, or teazed nerves appear in the form of visceral neuralgia, hysteria, neurasthenia, hypochondria, etc., which call attention to the participation of the nerve centers, and may well cause anxiety in the patient when pregnancy or labor supervenes.

In addition to the general symptoms, we find also locally that all the activities of the uterus are more or less impaired by these interfering conditions. It is very noticeable, however, that the functional disturbance is in no way proportionate to the extent of the peritonitic changes, but rather to the anatomical location of the adhesions.

Menstruation.—The menstrual function, primarily, may be seriously involved. Thus a persistent and violent dysmenorrhea is found in many cases where the uterus is bound to the intestines, appendix, omentum, or abdominal wall.

I may quote briefly one of the three cases reported by Tipjakoff which illustrate this point:

CASE I. (Tipjakoff.)—Patient 18 years old, entirely well until 18 months before when she "took cold." Severe pain in abdomen and amenorrhea for several months. Latterly the periods are irregular and extremely painful, cannot eat, vomits, bowel motions hard and painful, cannot work, uterus nearly normal, but less movable and very sensitive ; vaginal vault flat and firm.

Diagnosis, adhesive peritonitis. Laparotomy—omentum adherent to the uterus—pelvic contents form a compact mass.

The adhesions were loosened and intestinal loops straightened. Recovery perfect—symptoms disappeared.

In this case the adhesions have a mechanical significance which is especially detrimental in the working classes. It is readily apparent that the inflammatory displacement of the uterus and adjacent organs results in an interruption of the circulation of the blood in the pelvic plexus, thus causing a chronic congestion and a continual irritation of the nerve filaments, and to this is repeatedly added the inflowing menstrual current with its many painful possibilities.

In Tipjakoff's case, the menstrual rhythm was also interrupted and the periods became markedly irregular.

In case the appendix is attached to the uterus and appendages an apparent irregularity may occur, intermenstrual congestion may arise from the swelling of the appendix, and the suggestion

occurs to one, that some cases of the so-called "Mittelschmertz" may be thus explained.

On the other hand, Brandt reports three cases of obstinate dysmenorrhea which were entirely relieved by appendectomy wherein no adhesions existed between the appendix and the genitalia, hence it is difficult to say how much of the irritation is due to the adhesions, and how much to a general hyperesthesia of the local ganglia, but it is evident that a local hyperesthesia would be greatly intensified by the presence of adhesions.

Sterility.—To substantiate the effect of adhesions as an agent in the cause of sterility, we must appeal largely to theoretical considerations. One etiological factor would certainly be the existence of dyspareunia in the presence of adhesions and inflammatory 'residues.

Other more definite conditions are present where the tubes and ovaries are bound down by adhesions so that the tubal lumen is occluded, as occurred in Kaltenbach's case, or where the tubes are obstructed or kinked by string-like adhesions, or by inflammatory residues which may be subsequently absorbed so that conception does occur. The lumen may be entirely occluded when the various parts of the tube become adherent to each other, to the uterus, to the ovaries, omentum, or other organs, and render conception a mechanical impossibility.

In just what degree, if any, the woman's chances of conception are impaired where only one tube is occluded, it is impossible to state. Where the uterus has been drawn into a retroflexion or lateroflexion by the adhesions or shrinkage of inflammatory tissue, conception will be markedly hindered, as the investigations of Winckel and Biegel show, and certainly all the variations from the normal position accompanied by fixation must greatly impair the ability to conceive.

Kehrer was able to establish perimetritic adhesions as a cause of sterility in 33.1 per cent. of his cases, although possible coexisting uterine diseases might explain many of them.

Tubal Pregnancy.—Adhesions may also play an important rôle in the determination of a tubal pregnancy by the constriction of the lumen, as in the historic case of external wandering of the ovum reported by Weber von Ebenhoff where the right tube was obliterated; the corpus luteum was found in the left ovary, and the fertilized ovum in the end of the right tube. It is highly probable that the adhesions in Kaltenbach's case were responsible for the tubal pregnancy as well as the sterility as shown by her

repeated pregnancies and the cessation of the same after the attack of peritonitis. The gradual absorption of the inflammatory residue finally reached a point where the spermatozoa could reach the ovum.

CASE II.—(Kaltenbach)—Patient 30 years old, V-para, old pelveo-peritonitis. Sterile for five years. Six weeks pregnant. Rupture of tubal pregnancy. Laparotomy. Death 36 hours later. Section—death from secondary hemorrhage. Pseudo membranes on posterior border of uterus floating free, and on lateral boundaries of cul-de-sac. Membranes show vessels with open mouths. On posterior wall of cervix a raw bloody place. Ruptured tube now entirely free in clots, was previously adherent to the membranes and lying in cul-de-sac in association with non-pregnant tube and ovary.

The tube, however, may be only partially occluded and permit the spermatozoa to reach the ovum somewhere near the fibriated extremity of the tube, but too small to allow the passage of the ovum to the uterus. Then, too, the adhesion may so impair the peristalsis of the tube that the ovum does not pass on to the uterus, but locates and developes at the point of obstruction.

Pregnancy.—The effect produced upon the general system by adhesions will be greatly intensified by pregnancy, and per contra, the subjective symptoms of pregnancy will become much more serious. The neuralgias will be more persistent and widespread, the constipation more obstinate, or replaced by diarrhea, the nausea and vomiting more persistent and dangerous. In Rothenberg's case (Case V.) this condition became so serious that labor was induced at the eighth month, and the symptoms were directly attributable to dense adhesions which restricted the normal growth of the uterus. Many local symptoms are produced by adhesions, the most important, however, is an unusual amount of pelvic pain of various kinds, due to the stretching of the membranous bands, to continual and interrupted traction upon extremely sensitive organs, to pressure or traction on nerve filaments, as in cicatricial tissue elsewhere, and to restriction of normal development and functions.

The contest between the peritoneal adhesions and the almost resistless advance of the uterus in pregnancy, is fraught with the greatest interest to the obstetrician. Numerous and varied consequences are determined by the site and strength of these adhesions : if frail, they may rupture, or possibly soften under the increased succulence of the tissues in pregnancy, or stretch with

the growth of the uterus and have no deleterious influence whatever.

Again, if the uterus is adherent to intestines or omentum, the pregnancy may terminate undisturbed because the unusual mobility of these organs will not hinder the activities of the uterus. But if the uterus is bound to the abdominal wall, or pelvic peritoneum by adhesions that are short, broad and dense, the result is usually an abortion, because the egg must develop over the fixed and stiff portion of the uterus where growth fails, a hemorrhage will occur between the egg and the uterus, and usually the egg is thrown off.

If the adhesions are distensible an incidental pregnancy may have a favorable influence, but, on the other hand, they may give way as in Holowko's case and produce a fatal hemorrhage from rupture of adhesions between the ascending and transverse colon, which is particularly interesting because the origin might plausibly be attributed to increase of intra-abdominal tension at the eighth month, the physiological overfullness of the blood vessels assisting in making rupture easy when an exciting cause is present.

CASE III.— (Holowko)—Patient 36 years old. III-para. Eight months pregnancy. Jumped a little while hanging out wash. Temperature 100° F., pulse 120. Abdomen swollen, uterus as hard as a stone—fetal parts not palpable. Extreme pain and meteorism. Labor two days later, fresh macerated child. Death 2½ hours later, after two attacks of collapse.

Section.—Fluid blood and clots in abdomen. Right flexure of colon adherent to neighboring connective tissue and to transverse colon. No open vessels, adhesions easily torn. Bleeding point encapsulated with old blood clots, strings, etc.

Death due to hemorrhage from torn adhesions. Greater hemorrhage occurred after labor and was attributed to diminished intra-abdominal tension.

In Kaltenbach's case, after five sterile years, a tubal pregnancy occurred, and the adhesions made tense by the growing ovum suddenly gave way, and at the same time ruptured the tube. The patient died of secondary hemorrhage from the adhesions.

The attachment between the uterus and the bowel and the pelvic wall may be so powerful and so firmly fixed that uterine rupture is produced by the growth of the uterus as in the very instructive case presented to this society by Watkins.

CASE IV.— (Watkins)—Patient 19. O-para. Six months pregnant. Peritonitis when 11 years old. Symptoms of ileus. Diag-

nosis—intestinal adhesions. Laparotomy. Old and recent blood clots, adhesions around sigmoid and left appendages. Extensive lacerations of uterus near left broad ligament, which was nearly torn from uterine wall by the growth of the uterus. Loop of sigmoid had been drawn up by adhesions so as to produce an obstruction of bowel. Left ovary and tube imbedded in mass of adhesions behind right broad ligament. Fetus and placenta delivered through incision in uterus. Death in 30 hours.

In other cases the uterine growth is hindered by the firm adhesions and the uterus prevented from rising into the abdomen. This is most frequently found in cases of retroflexion but occurs even when the uterus is not retroflexed as in the appended case.

Case V.—(Rothenberg)—Patient two years before had general peritonitis. One and one-half years ago, an abortion. Nausea and vomiting began about a month after this present conception and became extreme—no food at all retained by stomach. Repeated examinations up to the sixth month showed that uterus did not rise out of pelvis. Near the sixth month, while turning in bed, something gave way with considerable pain, and examination showed that uterus had risen out of the pelvis. Better for two days, when paroxysms returned, uterus immovable as before. Accouchement forcé about eighth month. Child 2650 grms. Temperature and pulse remained normal throughout pregnancy.

Koenig reports a confirmative case.

Another effect as found in Treube's case is gangrene of rectum at 7th month, produced by the direct pressure of an incarcerated and retroflexed gravid uterus fixed by dense adhesions and compelled to grow in certain directions only.

Adhesions may also cause an incarceration of the pregnant uterus, in spite of the opinion held by many that the adhesions will stretch, or the woman abort. The adhesions may stretch, but not enough ; the uterus is held back and incarceration occurs. Whether incarceration is total or partial depends upon the original position in which the uterus is held by the adhesions—if fundus is fixed far back and deeply, the uterus developes against the pelvic wall and the incarceration is complete ; if directed against the promontory, the retroflexed and gravid uterus will be only partially incarcerated.

In a beautiful series of retroflexions reported by Dührssen, there is found nearly every variety of complication which occurs to the displaced uterus in pregnancy fixed by adhesions. The symptoms

being less pronounced and later in point of time, the nearer the adhesions find attachments to the cervix.

In his series we find dangerous thinning of the uterine walls; frequent abortions both spontaneous and induced; compression and obstruction of the rectum; fetal death; torsion of the uterus; reposition under narcosis prevented by adhesions; forcible reposition producing abortion, or peritonitis, or both; spontaneous partial reposition; successful reposition with labor at term; serious and fatal conditions of the bladder, patient dying undelivered at term and rupture of bladder during attempt at reposition. The adhesions also appear in great variety, and occasionally all the viscera are bound up in a mass of adhesions as illustrated in Case I. (Tipjakoff) and by many of Dührssen's cases.

In six other cases of Dührssen there were adhesions of uterus to the bladder and of the bladder to other organs or to the abdominal wall which prevented reposition, or so firmly fixed the uterus that reposition was followed by abortion or death, or both.

Maternal death occurred in 75 per cent. of the cases Dührssen reported, and the post mortem revealed in detail the character and extent of the fixation.

Quite different results are produced when adhesions unite the uterus to other organs; here an effect is produced largely at the expense of the other organ or intravening organs owing to the massive strength of the gestating uterus. From proximity one naturally finds frequent adhesions to the intestines and omentum whereby the pregnancy and life of the patient are greatly endangered. Thus ileus is produced by the adhesion of a loop of intestine to the uterine wall, intestinal gangrene from direct pressure or from some interference with nutrition; in one case a fatal constriction was produced by a membranous string.

Case VIII.—(Tarnowsky)—II-para. Peritonitis 4 years before, after which pain in right side, 2 years later successful delivery. Now, at 5th month, great pain, continually increasing since 3rd month. Obstruction of bowels for two weeks and vomiting.

On examination long cervix admits two fingers. Slight but constant hemorrhage, pulse 140. Sleepy, but no pains, artificial abortion. Death six days later.

Section.—Omentum adherent directly or by strings in many places to intestine and abdominal wall; loops firmly adherent to mesentery and to cecum. On right side a loop of ileum was almost cut off by membranous adhesion, general peritonitis.

Schonheimer reports a very unusual complication, wherein the intestine was adherent to the anterior abdominal wall and the growing uterus mechanically pushed it upwards until, between the 5th and 6th months an ileus was produced that ended fatally.

It is surprising that so few complications are reported in connection with the appendix for it dips down into the pelvic cavity in about one-third of all the cases, and easily becomes adherent to the inner genitalia; nevertheless, complications do occur. Thus, in a case reported by Korn, the patient died of peritonitis from perforation of the appendix which was drawn tense by adhesions to the growing uterus. It is probable that the perforation was only hastened in this case by the traction, but the closure of nutritive vessels or gangrene might easily follow the stretching of the appendix.

Case IX.—(Korn)—Patient 35 years old, VIII-para: six months pregnant. Diagnosis peritonitis. Aborted next day with powerful pains; child soon died; uterus not palpable. Placenta slightly adherent. Death on 5th day.

Section.—Cecum dislocated to a point directly under the liver to which it was adherent, uterus and appendages normal. Peritonitis arose from perforation of appendix which was very tense from adhesion to developing uterus.

Case X.—(Crutcher)—Patient æt. 17; cramps, pain in bowels and stomach, some vomiting and constipation. Two days later a two months fetus was expelled, uterus curetted and packed. Patient became worse. Laparatomy. Large abscess containing offensive pus with walls unbroken. Death three hours later.

Section.—Adhesions nearly universal. Right tube normal save at one point where appendix was attached and here was found a small pocket of pus. End of appendix recently detached from fundus uteri. Appendix 10 cm. long and gangrenous for 3 cm. where attached to tube.

In one case (Craig) the adhesions in annular form engaged a loop of small intestine and produced an ileus, the woman being at term. The violence of the symptoms caused the death of the child. Labor occurred four days later. In cases like this it is not improbable that the growing uterus, even if it did not produce this annular opening by traction, at least enlarged it or maintained its patency and thereby favored the incarceration of the intestinal loop. A practical point is suggested here in the desirability of carefully differentiating the pain of ileus and labor pains.

Case XI.—(Hlawacek)—Patient 23 years old; I-para. Six

months pregnant: no history, abortion with symptoms of sepsis. Death in three days.

Section.—Prolapse of appendages which are adherent to uterus form a cover for an abscess in cul-de-sac, perforation. General peritonitis. Encapsuled mass also adherent to abdomen in places. Tearing of abscess walls by growing uterus and escape of contents produced the abortion and the peritonitis.

Horder reports a similar case.

If appendicitis existed before the pregnancy it might easily remain dormant until near the end, or be first reawakened under the influence of powerful pain activities which detach the adherent appendix from the uterus or release the contents of an encapsuled abscess.

The appendical, or other pus focus may be so stretched that the wall gives way and fatal peritonitis results. (Case XI.) The perforation may be either intra- or retro-peritoneal. If perforation occurs the peritoneal irritation leads to premature interruption of the pregnancy unless the pus finds an external outlet.

In Case X. the first attack subsided when the appendix became attached to the uterus, but the growth of that organ detached the protective adhesion and thus caused a recurrence. It must not be overlooked that traction alone is not so important in these cases, as the traction plus the irritation of a previously infected organ which still contains, undoubtedly, the latent infective agent ready to start a new inflammation as soon as released. In the anteflexed uterus a posterior bulging may occur as the result of perimetritic adhesions as the cases of Müller (Case XIII.), Negrier and Dührssen show.

In this event the fundus of the anteflexed uterus is adherent to the rectum by broad and firm adhesions, as not infrequently happens. The posterior uterine wall will be held back in the pelvis, as the adhesions cannot be stretched by the developing uterus; the posterior wall is gradually drawn down, while the growing ovum assists in distending the posterior portion of the uterus; a bulging occurs and the anterior portion rises unhindered into the abdominal cavity.

When these changes take place, the anteflexed uterus will be so altered in shape that in a month or so, it will be difficult to differentiate it from a retroflexed gravid uterus, the location of the cervix and the direction of the canal being the most reliable guides, as well as the fact that the uterus is more freely movable than it is in cases of retroflexion.

CASE XII.—(Müller)—Patient 27 years old. In childhood,

chlorosis, malaria, typhus with many complications (edema, abdominal swelling, abscesses of groin, etc.). 7 to 8 months pregnant. Examination, portio vaginalis behind symphysis. Posterior vaginal vault pushed down by tense uterus, uterus bicornate. Head lay in the bulged place back of the cervix. Uterus one finger above navel. Premature labor induced on account of threatening symptoms. Labor 24 hours. Child dead. Death 11 days post-partum from sepsis.

Section.—Fresh peritonitis, old adhesions to cecum, sigmoid flexure and omentum. Posterior surface of uterus adherent to cul-de-sac by masses of connective tissue. Endometritis and suppurative salpingitis.

CASE XIII.—(Hyernaux quoted by Depaul)—Patient 23 years old, 5 years married. Some years before this case, peritonitis and suppressio mensæ for 3 months. Now labor at term, 7 days in pains, no os to be found, finally discovered in left iliac fossa, while a bulging containing the head filled entire pelvis. Reposition failed. After some hours cervix dilated. The condition had produced a transverse position which favored embryotomy. Recovery. Uterus became anteflexed later but continued fixed on left side.

Croom's case was similar to Müller's and adhesions caused great dystocia. They were due to a suppurative pelvic peritonitis drained per vaginam. Posterior lip of cervix was palpable only under narcosis, hard and fixed above the symphysis, vagina filled with the bulging posterior lower uterine segment. No dilation after 36 hours and as adhesions forbade accouchment forcé, Cesarean section was done. Child was hydrocephalic, placenta lay in posterior bulging of uterus.

Other adhesions as in cases reported by Hubert, Hyernaux (Case XIII.) and Lazarewitsch (3 cases) showed cervix drawn to one iliac fossa with the result that a lateral bulging of lower uterine segment occurred with practically the same symptoms as described in cases of anteflexion.

Labor.—Very serious complications may also arise in the course of labor. One of the more common disasters is the rupture of an old encapsulated pus focus by the uterine contractions.

In Freund's case the patient died six days post-partum of general peritonitis, and the section revealed adhesions of omentum to abdominal wall, of the intestines to one another, and an old pus pocket under an ovarian stump, that had been torn open by uterine activity. Krukenburg reports a similar case.

Hlawacek reports the rupture of an appendicular abscess with fatal result, and Mundé (Case XIV.) a recurrence of appendical inflammation under stress of labor. It is probable also that suppurative conditions of the tube remain latent during pregnancy, and the contents are released suddenly by uterine contractions, or by manipulations in the 3rd stage, whereby many cases of puerperal fever that cannot otherwise be explained find an infective origin. Adhesions may be ruptured during labor causing fatal hemorrhage as possibly in the case reported by Schmorl. Uterine contraction also may be seriously interfered with by adhesions as in Leopold's case. (Case XV.)

CASE XIV.—(Mundé)—History of previous attacks of appendicitis. Confined by midwife in 1895, anencephalic infant, dead. Placenta adherent to right cornu, entirely removed. Two days later symptoms returned, retching and vomiting constant. Pain right iliac fossa. Six days post-partum tympanites returned. Temperature 101°, pulse 112. No dullness on right side; lochia offensive; operation 7th day of puerperium, perforated appendix, general cavity excluded. Death.

CASE XV.—(Leopold)—Patient had syphilis after 4th labor. Fifth labor expected in May. Peritonitis in February. Fetal motion ceased May 14, signs of labor two days later. June 13, flow of blood, fever. June 30, evil smelling liquor amnii discharged. July 21, colpeurynter in internal os in vain, collapse, death.

Section.—Large and small intestines bound to upper and anterior uterine wall by old adhesions, internal os greatly torn and infiltrated. Adhesions and consequent changes undoubtedly responsible for imperfect contractions.

CASE XVI.—(Maiss)—Patient 34 years old. I-para. Pregnant retroflexed fixed uterus (partialis). Retroflexion existed prior to pregnancy. Produced by perimetritic adhesions on posterior surface of uterus preventing upward growth of the organ and holding back the posterior wall. No abortion occurred; some stretching of adhesions did occur but woman went to term. Rupture of lower uterine segment in labor (before interference) due to fixation of lower uterine segment in labor by adhesions. Uterus adherent to the right and behind, the fetal axis pressure was improperly directed, head distended left side too much, hence rupture.

Braxton Hicks (Müller) has reported a case of rupture of uterus and Maiss (Case XVI.) has recently published a similar case, where perimetritic adhesions on post surface of uterus prevented the upward growth of the organ and held back the pos-

terior wall; as rarely happens no abortion occurred, the woman went to term and experienced a rupture of the lower uterine segment on the side opposite to that fixed by adhesions.

Hugenberger's case presented such dense adhesions around the uterus that the pelvis was obstructed and craniotomy became necessary. Spencer Wells, in discussion, mentions an instance of fatal strangulation of the gut during labor, the gut being adherent to the uterus. In Champetier's case on the contrary the labor phenomena seemed to result directly in occlusion of the intestine. The diagnosis was delayed here on account of confusion with the pains of labor.

CASE XVII.—(Champetier de Ribes)—I-para. Laparotomy 3 years before for left tubal pregnancy. Now a normal pregnancy. Bowels regular and normal. Soon after labor began a severe pain was felt in the left side which continued and grew worse after the labor which occurred spontaneously in about six hours. Tympanites and symptoms of ileus appeared on the first day of the puerperium. On the 5th day peritonitis and death.

Section.—Signs of old peritonitis; gangrene of a part of the colon through a kinking of the intestine due to adhesions between uterus and intestine and between intestine and colon.

In this case apparently the labor activities so altered the intraabdominal pressure that a loop of intestine was bent over the band of adhesion. This band, about as large as a goose quill, extended from the fundus uteri to the upper end of the ileo-pelvic colon and the intestine below the obstacle was flat and retracted. Numerous other adhesions were present but the obstruction was traced directly to this one.

An extremely interesting case is reported by Harris where pains were ineffective; on fifth day accouchment forcé; delivery failed because occiput remained posterior. Death. Section revealed the uterus rotated about its long axis about 90 degrees, and attached to abdominal wall by a pedicle about 2 cm. long.

Another complication is found as a result of parametritis posterior whereby the fold of Douglas is pathologically shortened and draws the cervix (usually in I-paræ) close against the posterior wall of pelvis—in consequence the head swells the anterior vaginal vault far down, head deep in the pelvis, portio vaginalis posterior and reached with difficulty or not at all.

In such cases the uterus, even in the first months, will show a pronounced distention and finally, the picture of a pathological anteflexion as illustrated by Croom's case.

This may well be compared with the growth of the posterior portion of the uterus when the anterior has been fixed to the abdominal wall by artificial adhesions. The course of labor in these cases is slow dilation, waters escape prematurely, dangerous distention and crushing of lower uterine segment or anterior uterine wall, and without assistance, the woman dies of sepsis, or rupture of the uterus.

The posterior cervical wall may also bulge, the os be drawn up above the symphysis, giving a condition where the delivery is only possible by incising the uterine wall as illustrated by the following case.

Case XVIII.—(Depaul)—Patient 35 years old, II-para, one abortion previously, now 24 hours in labor at 8 months ; os not to be found. After 12 hours uterus was incised at lowest point which proved to be placental site. Hemorrhage, tampon, delay, final extraction. Death on 2d day.

Section.—Os above symphysis size of a quarter, 9 cm. posterior was the incision, size of half a dollar. Between posterior vaginal wall and uterus were dense adhesions.

The Uterine Contents.—The placenta is variously affected by the surrounding conditions and doubtless there is a direct pathological connection. Where the uterus is displaced and bound down in retroflexion by adhesions it would be strange if the formation of the placenta at the 3d month did not exhibit some evidence of its peculiar environment.

The symptoms of incarceration do not appear usually until after the formation of the placenta from 3 to 4 months, hence in Lehman's case the appearance of a neben placenta and a placenta succenturiata might be very plausibly attributed to malposition of the uterus. Pilot and Depaul also report cases where the posterior bulging of the uterine wall was the site of the placenta.

In a case of bulging of the anterior uterine wall reported by Bavay, the placenta was found in the depression.

In a case reported by McLeod where the uterus, bound down by adhesions, required Cesarean section at term, the omentum was adherent to anterior surface of the uterus ; the median incision in the uterus exposed the placenta also on the anterior surface and so densely adherent to its site that it had to be scraped away piecemeal.

The adhesion of the placenta to the uterine wall may be explained in a certain percentage of cases by extension of the inflammatory process, or infective material from the adjacent abscess

when the uterus forms one wall of abscess cavity as in Mundé's
case ; or the infection may extend along the adhesion and affect
the placental site by continuity.   In Mundé's case there was a
history of a previous appendicitis.   A perforated appendix and
abscess were found five days after labor at term and the placenta
was adherent in the right cornu.

Thomason also reports a case of appendicular abscess with
placenta adherent on right side of uterus.

It is reasonable to expect these various inhibitory influences
around the uterus to extend to the egg and affect the fetus.   In a
few cases where abortion does not occur, we find a variety of
anomalies—such as a restriction of growth as in Rothenberg's
case.   In Hyernaux' case also the lateral fixation of cervix favored
a transverse position of the fetus which easily permitted the neces-
sary embryotomy.

The effect of reposition upon the life of the fetus was fatal in
Hubert's case ; the babe in Holowko's case died of anemia from
tetanus uteri, due, however, to the rupture of adhesions and con-
sequent hemorrhage, rather than as a direct result of adhesions ;
and in the case reported by McLeod and Martin, the child died at
five months ; woman went to term and was delivered of a macer-
ated fetus.   Rare conditions of the head occur twice, an unusually
high percentage, thus in the case of Mundé the fetus was anen-
cephalic and in Croom's case hydrocephalic.

In two cases of abortion (Bell and Eichhorn) malformations
and distortions of the fetus were found and traced directly to the
spacial limitation.

Without going deeply into the subject it can safely be said that
the placenta is an organ of variable permeability and it is certainly
the organ whereby germs and toxins may reach the fetus.

In the location of a large abscess so near that the uterine wall
constitutes one side of the abscess, and with the placenta attached
to that side, conditions are present which undoubtedly furnish an
easy source of infection to the fetus and may result in a stoppage
of its growth by death, or an alteration of its form by disease.

In other cases the limitation of space, due to paucity of liquor
amnii was accentuated by changes in uterine shape and the fetal
malformation was readily explained by analogy with other cases.

Puerperium.—As the uterus in its upward growth causes many
disturbances when restricted or curbed by adhesions, so may its
downward course in involution be attended by a variety of fre-
quently fatal results.

Thus in the classic case of Hohl (Case XXI.) the puerperal uterus being attached by membranous strings to mesentery and transverse colon, caught a loop of intestine underneath the band, and the shrinkage of the uterus cut it off. In Noble's case, during uterine involution intestinal occlusion occurred from traction on the adhesions which connected the uterus with the intestine and ended fatally.

In another instance (Heller, Case XIX.) the end of the ileum about 15 cm. from entrance to cecum was firmly adherent to uterus and during involution the intestine was so strongly drawn over the promontory of the sacrum that occlusion occurred.

CASE XIX.—(Heller)—Patient 29 years old. V-para, 12th week of pregnancy; severe vomiting; 18th week, abortion, after repeated attempts placenta removed on 5th day. Swelling, tenderness of abdomen with constipation. Under drastics, profuse diarrhea. Nineteen days later complete obstruction, vomiting, iliac disturbance. Death 24th day.

Section.—Fibrinous peritonitis, small intestine enormously distended, colon throughout collapsed. End of ileum about 5 inches from entrance to cecum, firmly adherent to uterus and by this so strongly drawn over the promontory that it came to a point at an angle and was not patulous. Other abdominal contents sound.

CASE XX.—(Muret)—Patient suffered severe pain in right iliac fossa and fever between 5th and 6th months of pregnancy. Labor at term. Two days later, peritonitis, perforation, death.

Section.—Pus in abdominal cavity. The adhesions had been torn by shrinkage of uterus.

CASE XXI.—(Hohl)—Seamstress, had symptoms of peritonitis in first pregnancy. Colicky pains in beginning of 2d pregnancy, disappeared in 2d half. Labor normal, eight days later, sticking pains, vomiting, swelling, tenderness of iliac region, obstipation, death after 14 days.

Section.—Fresh peritonitis, uterine involution good. In small pelvis and from fundus arose some string-like adhesions attached to mesentery of transverse colon and this band being firmly stretched over a loop of small intestine had cut it off. Gottscheid also reports a case where adhesions between uterus and intestines arising during pregnancy, resulted in a fatal ileus in the puerperium.

In McArthur's case the uterine wall at five months formed the inner wall of an appendical abscess which was opened and

drained; two days later abortion followed, then a recrudescence of appendicular inflammation and death.

Muret (Case XX.) reports a very pertinent case where the uterus after labor at term had torn the adhesions and produced a fatal peritonitis.

Serious post-partum hemorrhage may also occur when contractions in the 3d stage are interfered with by adhesions which prevent the proper shrinkage of the uterus.

To summarize, then, the results of this investigation, we may say that in all, 73 cases are found in literature and the consequences may be grouped as follows: 20 mothers live; 19 babies live; 15 women had normal labors at term; 8 women died undelivered; premature labor occurred 6 times; induced abortions, 5; spontaneous abortions, 28; 44 mothers died; children lost (all cases), 42; fetal deformities, 5; placental adhesions, 6; other placental anomalies, 4.

Many laparatomies were done but among the operative procedures at term we find: Forceps 1, craniotomies 2, embryotomy 1, for ruptured uterus 2, Cesarean sections 3.

In this collection it was necessary to exclude many very interesting cases both with and without adhesions (ileus, appendicitis, retroflexion, etc.) which occurred in association with the functionating uterus, but which seemed in no way to interfere the one with the other.

Thus many abortions occurred as a result of the violent constitutional symptoms which were superinduced by causes other than the adhesions which were present in greater or less degree.

It is no doubt true that adhesions are frequently present in association with pregnancy and labor which do not produce any serious pathological complications, and it is a fact that many of the anomalies herein mentioned occur in conjunction with pregnancy and in the absence of adhesions. Nevertheless, these rare cases serve to show what fatal consequences may follow a peritoneal inflammation at a remote period by means of adhesions to a uterus subsequently functionating.

From this review of the literature I believe that obscure peritoneal adhesions are responsible for many cases of so-called hysteria, and frequently for menstrual pain and irregularity.

The presence of adhesions undoubtedly produces many abortions and influences a certain percentage of fetal and placental anomalies.

It is quite well recognized that sterility and tubal pregnancy may

result from such conditions and it is also probable that pregnancy and labor are rendered pathological by the presence of adhesions far oftener than the literature would indicate. Many adhesions are undoubtedly destroyed by the growth of the uterus in pregnancy but the rupture of the same may be attended with fatal hemorrhage.

Adhesions between the movable organs of the abdomen and the functionating uterus are only rarely a source of danger or a cause of death. Where adhesions are protecting the peritoneal cavity from pus pockets, either appendicular or tubal, and pregnancy supervenes a condition of extreme danger is present. The pus should be evacuated as soon as possible after the diagnosis is made without reference to the pregnancy, and even if abortion should follow the condition is less serious than when rupture occurs during pregnancy and labor. When the diagnosis is made during labor it is allowable to temporize until the termination of the case, accelerating the labor if possible by artificial assistance. When the intestines are seriously involved (occlusion) the phenomenon in a majority of cases occurs between the fourth and the seventh month of the pregnancy. When ileus occurs during pregnancy and labor the prognosis is very grave for both mother and child but especially for the mother. The treatment of these cases should be surgical rather than obstetrical.

BIBLIOGRAPHY.

ABRAHAMS : Am. J. Obst., '97.
BILLROTH U. LÜCKE.
BRANDT : C. f. Gyn., '90.
BIEGEL : Path. Anat. d. Weibl. Unfruchtbark.
BOISSARD : Bull. de la Soc. d'Obstét. de Paris, 1902.
COE : N. Y. J. Obst. & Gyn., Vol. III.
CRAIG : Obst. J. Gr. Brit. & Ireland, 1878.
CRUTCHER : Med. Rec., '96.
CHAMPETIER DE RIBES ET DANIEL : Compt. Rend. de la Soc. d'Obstét., Paris, 1902.
DEPAUL : Arch. de Tocol, 1876.
DÜHRSSEN : Arch. f. Gyn., Bd. 57.
FREUND, H. W.: Ergebniss d. Path. Anat., Lubarsch & Ostertag.
FRAENKEL : Samml. Klin. Vortr., 229-323.
GERSUNY : Arch. f. Klin. Chir., '99.
HLAWACEK : Monat. f. Geb. u. Gyn., Bd. VI.
HOLOWKO : Ztsch. f. G. u. Gyn., Bd. XXI.
HARRIS : Am. J. Obst., 1880.
HERMES : Deutsch. Ztsch. f. Chir., Bd. 50.
HUNTER : Am. Gyn. Soc. Trans., 1886.

KALTENBACH: Ztsch. f. Geb. u. Gyn., Bd. XVI.

KELTERBORN: C. f. Gyn., '90.

KORN: C. f. Gyn., 1885.

KRUGER: Deutsch. Ztsch. f. Chir., Bd. XLV.

KRUKENBURG: Arch. f. Gyn., '88.

KOENIG: Beitr. z. Geb. u. Gyn., 1900.

LAZAREWITSCH: Annales de Gyn., 1885.

LEHMANN: Berl. klin. Woch., 1901.

LEOPOLD: Arch. f. Gyn., '77.

MAISS: Arch. f. Gyn., '99.

MARTIN: Ztsch. f. Geb. u. Fr., Bd. I.

McARTHUR: Am. J. Obst., '95.

McLAREN: Am. G. & Obst. J., 1900.

McLEOD: Br. M. J., Jan., 1901.

MEYER: Monat. f. Geb. u. G., '99.

MÜLLER, P.:   Krankh. d. Weibl. Körper.

MURET: C. f. Gyn., '94.

MUNDÉ: Med. Rec., '95.

NOBLE: Annals of Gyn. & Ped., '99.

NOTHNAGEL: Erkrank. d. Darms. u. Periton.

ROBINSON: The Peritoneum.

ROTHENBERG: Cin. Lancet-Clin., '96.

SCHMORL: C. f. Gyn., 1902.

SCHÖNHEIMER: Encyclop. G. u. Gyn., 1900.

SONNENBERG: Deutsch. Ztsch. Chir., Bd. 38.

SOUTHEY: London Lancet, '71.

TARNOWSKY: C. f. Gyn., '78.

TEMOIN: Soc. Chir. de Paris, 1898.

THOMASON: Med. Rec., '96.

TIPJAKOFF: C. f. Gyn., '92.

TREUBE: C. f. Gyn., '92.

VEIT: Müller's Handbuch d. Geb.

WATKINS: Am. J. Obst., 1902.

WEBER VON EBENHOFF: In Müller's Handbuch.

FETAL ASCITES WITH DYSTOCIA.

BY

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APROPOS of the case of fetal ascites, reported by Dr. Eden to the Obstetrical Society of London, February 4th, 1903 (AMERICAN JOURNAL OF OBSTETRICS, May, 1903), the following may be worthy of record :

The author was called out of town at noon to attend Mrs. D., the message giving no intimation of the character of the illness. The patient was found to be an Italian immigrant, who could furnish no details of her condition, past or present, because of entire ignorance of our language. Her husband, a hard working quarryman, could talk a little English, and supplied the following history : his wife was thirty-two years old, was seven months and one week pregnant, and up to four days previous had been able to do her ordinary household work. Labor began that morning, since which time it had been continuous until the present, or almost exactly ninety-six hours. She was dressed, sitting in a chair, and labor pains were strong and frequent. Upon being placed upon the family bed physical examination showed that a little nut brown woman, with anxious face, had an immense abdomen so tense that with even a good amount of manual pressure no distinct uterine tumor could be felt. There was complete absence of fetal heart sounds and movements, the vagina was rather small, and the cervix was about two-thirds dilated but somewhat rigid. The presentation was cephalic, in the third position (O.D.P.), the head apparently corresponding in size to that normal to the estimated period of gestation.

Foreseeing the probabilities of a difficult operative delivery from the delay in labor hitherto, and being unprovided with obstetrical apparatus, a hypodermic of morphine was given to relieve the incessant pains and assist in dilatation until preparation could be made for the emergency. Four hours later the patient was found resting quietly, though pains were still active. After explaining to the husband and his compatriots present, male and female, that natural birth was impossible and that anesthesia was imperative, the woman was chloroformed after a fierce struggle against it

upon her part. Owing to the poverty of the family there were very few of the articles which, among the more favored, are the essentials of housekeeping. My obstetrical case, which is that designed by Dr. Edgar of New York, supplies two agate iron trays, without which it would have been difficult, if not impossible to have preserved the proper asepsis.

After thorough sterilization of operator and patient, the cervix was fully dilated with the fingers and membranes ruptured, the quantity of liquor amnii escaping, fully one quart, showing that there must have been previous hydramnios. Successive attempts to manually rotate the occiput forward failed, and forceps had to be applied while the head remained in its original posterior position. With much greater difficulty than is usual at this period of fetal development (seventh month) the head was extracted, sinciput forward, but the utmost traction upon it could not draw down the shoulders sufficiently for the fingers to reach the axillæ, nor could the hand be passed into the uterus in order to determine the reason for the dystocia. The abdomen was fixed evidently in the superior strait. Embryotomy was discussed, but rejected because the exact nature of the fetal irregularity was unknown, and through fear that removal of that part of the fetus which now furnished a means of traction would further complicate delivery. The assistant, who has a smaller hand than the author, was finally able to extract one arm, followed after a time by the other, but it was still impossible to draw out the trunk or pass inside the constricted cervix with either hand or finger. While considering the propriety of aspiration of the fetal abdomen, an extra effort of traction resulted in sudden delivery of the body, which popped out of the vulva like a cork from the neck of a bottle. Birth had required more than two hours of very hard work.

The fetus, which was a male and weighed six pounds, had been dead several days, as shown by desquamation of the skin. The obstruction to delivery was an enormous enlargement of its abdomen, which was as large as an ordinary football, at one pole of which was the relatively small head and at the other the little thighs and legs. Subsequent examination of the child revealed fracture of the neck, both clavicles and arms; normal cranial contents, heart and lungs; ascites to the amount of 500 c.c.; liver not enlarged, and the other abdominal viscera including the peritoneum healthy. Careful manual internal pelvimetry after delivery demonstrated narrowing of the brim, antero-posteriorly, by projection of the promontory to the extent of about one inch, the

variety of deformity being that of the ordinary flat pelvis. The immediate source of the dystocia was the fetal ascites combined with narrowing of the inlet, but its pathology must be conjectural, as unfortunately no microscopical examination of the fetal tissues was made.

As a result of the prolonged and forcible manipulation, the perineum was badly torn through the left sulcus and well down laterally to the rectum. By the light of a poor kerosene lamp and largely by the sense of touch the wound was sutured with catgut, the uterus thoroughly irrigated with lysol solution, and the final toilette of the woman made. The third stage was delayed by the necessity of manual extraction of the placenta, but was otherwise normal. On the following morning, according to the author's custom after operative delivery, drachm doses of a saturated solution of Epsom salts were given every hour until free catharsis resulted. Without any other nurse except the husband the puerperium was uneventful and afebrile. The ascites and edema readily disappeared, and though for several days the perineal wound threatened to slough it was found at the end of a week to have united completely. There was no attempt at lactation, and household duties were resumed after two weeks.

The case is an object lesson in modern private midwifery. It demonstrates, that labor in the home under unfavorable surgical environment, in the absence of even the rudiments of nursing, and when as complicated as the present, may be clinically aseptic and safe, when managed according to the protective method of delivery.

The etiology and pathology of this rare form of fetal disease is unsettled, partly from its unfrequency and partly from the failure to make autopsies upon the cases when observed. According to Ballantyne (*Antenatal Pathology and Hygiene*) of 65 cases reported 8 were due to syphilis and 19 to hydramnios. "There are some cases in which it is fair to regard the ascitic condition as the result of fetal syphilis arising from maternal or paternal infection, and consequently as a transmitted disease, or as one of the manifestations of a transmitted disease. Excluding syphilitic cases, which are not numerous, there remain many in which the ascites must still be regarded as originating in the fetus apart from maternal states." Chronic peritonitis, less frequently acute, was found in about one half of the autopsies, disease of the liver and spleen was quite unusual, distention of the bladder was a somewhat common association with the ascites, and occasionally there

was dilatation of the ureters and hydronephrosis. Various de-
formities of the external and internal genital organs or lower por-
tions of the intestines have been found coincident with the
ascites.   By general consent the first place in etiology is assigned
to peritonitis, which, though without general explanation, was in
one case due to escape of urine into the peritoneal cavity.   "Just
as in the adult, the disease is a symptom or effect of different
morbid processes, rather than a disease *per se:* but the morbid
processes which produce the antenatal form are almost certainly
different from those which lead to the adult variety.   Further ante-
natal ascites reaches a far more deforming degree than the disease
ever does when developed in postnatal life" (Ballantyne).

Fetal ascites has a distinct pathological influence upon gestation.
In 36 cases out of 43 there was premature termination of preg-
nancy, and in four cases out of 64 the mother died from the pro-
longed labor and operative violence.   The fetus dies either just
before birth (as in the present case), or soon after : in one case it
lived after paracentesis with removal of 500 grams of fluid.

The classical management of these anomalies, whenever the dis-
ease is recognized before descent has taken place so far into the
birth canal that intrauterine examination is impossible, is an evacu-
ation of the ascitic fluid, subsequent lessening of fetal bulk being
followed by ready extraction of the trunk.   As, however, the dis-
ease is generally unsuspected owing to its extreme rarity, ex-
planation of the dystocia is not apparent until after delivery.
Under ordinary conditions of practice, birth must be effected by
traction, more or less difficult according to the amount of disten-
tion of the fetal abdomen, by aspiration, or by embryotomy, any
or all of these methods being necessarily combined.

159 HIGH STREET.

A PRELIMINARY REPORT ON ELECTROTHERMIC HEM-OSTASIS WITH THE DOWNES INSTRUMENTS.

BY

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THIS is sufficiently new and of enough practical importance to make a report of all additional cases, especially by additional operators, desirable. For this reason I take the liberty of stating my experience with it in fifteen cases. Seven of these were median ventral celiotomies, in each of which a tube and ovary were removed from one side and in one case from both sides, for inflammatory changes that varied from small solid tubo-ovarian conglomerates to larger ones with pus in ovaries and distended tubes. In one case in which the tube and ovary so changed were removed from the right side by this method, ligatures alone were depended upon to remove an ovarian cyst with large intraligamentous development and a diseased tube from the other side, chiefly because the parts were so deep seated that the application of the electric forceps and insulation of the heating blade would have been more difficult and insecure than the use of the trusty catgut.

In two of these seven cases appendectomy was also performed by this forceps. Five of these cases were performed before Dr. Downes published the exceedingly important requirement to oil the heating blade to prevent the tissues from becoming baked fast upon it. This occurred in most of these cases, and the rather difficult detachment so lacerated the baked pedicle that bleeding followed and made almost a complete supplementary ligation necessary in three of these cases. But since I have taken the precaution to distribute a good layer of sterilized oil over the entire compressing surface of the heating blade, this has occurred only once from a large superficial vein in the infundibuliform ligament, that became attached to the unoiled side of the hot blade and was torn open when the latter was removed and a gush of blood followed. Since this occurred I immerse the entire blade in the oil.

In one case a catarrhal appendix with its mesentery, also a large cystic right ovary and the corresponding tube were removed by three successive seizures through an appendicitis incision. In

another case of right inguinal hernia the same structures were similarly removed by this instrument through the dilated hernial incision.

In two cases of my bi-inguinal celiotomy (extended Alexander operation) for retroversion complicated by diseased appendages, a tube and ovary was removed through the merely dilated internal inguinal ring, by one seizure of this forceps, without ligatures.

One case of unusually large and protruding internal hemorrhoids was attended to with very satisfactory primary and ulterioɹ results, after stretching the sphincter ani, by four seizures with this large forceps, applied about two minutes each time.

This method served well in three cases of vaginal hysterectomy, in effecting hemostasis entirely without ligatures upon the broad and infundibuliform ligaments by two seizures upon each side, excepting in one case where three seizures were made upon one side, or five in all in that case. In these cases about 100 amperes (nearly double the current needed to heat the platinum knife) was applied for $1\frac{3}{4}$ to 2 minutes each time. In these, as in the other intrapelvic cases, the forceps was so applied as to make the heating blade the more exposed one, so that it could be most readily and effectually insulated by dry gauze packed about it. The technic in these cases was briefly as follows: With the Downes platinum electro-thermic knife the vagina was severed from the cervix by an elliptical transverse incision having acute angles extending at least 3 cm. to each side of the cervix. The posterior cul-de-sac was then opened and the bladder and ureters elevated from the uterus anteriorly, usually without opening the peritoneum in front at this time. The base of the broad ligament with the uterine artery was then clamped on the two sides in succession with special care to hold aside the tissues that contain the ureter. The bands of baked tissue were cut near their distal margin so as to leave their greater portions behind to ensure against bleeding from laceration of the pedicle. The upper grasp was taken after the fundus of the uterus was turned out, the tubes of both sides being drawn down and included and the ovaries likewise, unless it was intended to leave one of them. Sometimes bleeding continued from small vessels in the vaginal wound or in the connective tissues above it on one side, which was stopped by suture. The peritoneal cavity was then closed by continuous catgut suturing of the peritoneal edges, anterior and posterior, from each side inward toward the median line where the two threads were tied after an index finger had been introduced to make sure

that no omentum or intestine had been caught in the approximation. The vaginal part of the wound and connective tissue area above it I always leave open to be drained by gauze.

It is in vaginal hysterectomy that this method of hemostasis is particularly advantageous; not merely in cancer cases because of the more extensive destruction of the adjacent tissues, but also in all other instances of this operation; particularly in the cases that do not really need a gauze drain or packing to be left extending into the peritoneal cavity because of extensive raw surfaces or the presence of infectious matters in the field of operation. In all cases not complicated in this manner it is a positive duty to close the peritoneal cavity in this as in nearly all other celiotomies, by suturing at least the peritoneal portion of the wound. The former routine practice of leaving a foreign body (gauze) in the pelvis in all these cases was most reprehensible because it invited the adjacent loops of small intestine and omentum to agglutinate to each other and to adjacent parts of the wound. These adhesions frequently remain permanently and occasionally cause intestinal obstruction. I have operated for this disorder three times, following remotely after a vaginal hysterectomy, performed in two cases by others. When a forceps is used upon the broad ligament for 48 hours, this closing of peritoneum, which is so desirable, cannot be done; and hemostasis by ligation either primary or by tying-off forceps previously applied can usually be done safely, but it is sometimes difficult; and when the stumps are high up, a heavier catgut ligature is often needed, in order to stand the great strain—a forceps being sometimes required to assist in placing it. Such heavier ligatures, especially when placed upon the uterine arteries, will sometimes become infected before being absorbed, because of their communication with the vaginal cavity which is very difficult to keep entirely aseptic for three or four weeks after operation. Such infected ligatures will then occasionally lead to infection and breaking down of the thrombus in the ligated end of the artery, and to severe bleeding as late as about three weeks after operation. Two such cases I have experienced myself, that were fortunately saved, however, from very imminent death, the one by a hasty ligation of both internal iliacs and the other by several large pedicle forceps caught upon the bleeding area in the vaginal vault by an assistant, which were left in place for 48 hours, the ureter fortunately escaping occlusion. The electro-thermic forceps may be expected to do much in this operation, in avoiding

the remote evils from intestinal adhesions and the dangers that sometimes follow infection of an important ligature.

In the following four points I am obliged to differ with Dr. Downes:

1. The current which is sufficient to heat his platinum cautery knife (60 amperes) is not sufficient to heat his large forceps sufficiently to make water boil over its entire surface in the time (10 to 20 seconds), in which it is supposed to do it, nor is it, in my experience, sufficient to produce the necessary cooked or baked state of the tissue in the grasp of the large forceps at all, in any acceptable period of time; but I have found it necessary to use more nearly double the current that suffices to heat his cautery knife; and it has been necessary to double the time of application also—using 1½ to 2 minutes on most of the more bulky seizures. This may be due in some cases to loss of heat in the handle of the forceps which I have used, by his direction, which has the binding posts at the end of the handle of the heating blade. The warmth of this handle serves me quite well to indicate the proper degree of action upon the tissue, and the counting of seconds is but a secondary procedure with me. The effect of the heating current upon the blade of the forceps is probably quicker and more intense when the binding posts are placed beyond the lock upon the base of the blade itself, as in Dr. Downs' more recent designs, because the amount of metal to be heated is less. But nevertheless I would prefer to have the binding posts at the end of the handle, as it does not bring the conducting cable into the wound so badly and gives better opportunity to estimate the degree of heat actually developed.

2. The time required to oil the blade, to apply the forceps, insulate the blade, connect the cable and then to wait from 1¼ to 2 minutes for a sufficient effect, is not always less than is required to ligate the parts. It is so when more than one ligature would be needed for the same structures, as upon the appendix vermiformis and its mesentery, which are both attended to by one seizure of the forceps, or when the parts to be ligated are very difficult of access, as in the upper ligatures in many vaginal hysterectomies.

3. The rather forcible effort to make this method of hemostasis supersede or displace ligatures entirely in pelvic and abdominal surgery is not judicious; because the heating blade would sometimes be required to be placed in a location where insulation of it would be very difficult and therefore also insecure. And in re-

moving diseased Fallopian tubes it is not sufficient to tie or to burn them off at the uterine cornua, but they need to be excised from the latter and the resulting wound sewed up with readily absorbable material, in order to free the uterus of this most offending portion of the tube and also to offer the only real assurance of permanent closure of the tube.

4. In regard to the effect of his electro-thermic forceps upon the stumps of structures like Fallopian tubes, and the vermiform appendix, when these are amputated by his instrument, Dr. Downes makes two assumptions which are not reconcilable with each other. The first is that these forceps make a permanent closure of such tubular organs. He thinks that the tissues which have lost their histological identity by the joint effect of heat and compression will serve as or develop into cicatricial caps over the lumina of such stumps. The other assumption is that the parts of such septic tubes which are treated by these forceps are also sterilized. Neither of these propositions has been proven. And it can not be questioned that tissues that have been treated by dry or moist heat sufficiently to kill septic micro-organisms that were previously present in them, have also lost their vitality altogether too far to escape disintegration and absorption in any living animal.

The advantageous features that I would concede to this method of hemostasis, *a priori* and from my brief experience with it, are :

1. Patients are more comfortable after operation, I think, because the nerves in the stumps so treated are insensitive, which is not true in ligated stumps.

2. As these pedicles are probably sterile and become disintegrated and absorbed, they cannot give rise to adhesions of viscera as we know that ligated stumps often do.

3. There is less blood lost because this hemostasis is complete and wholly an antecedent or preventive one, which is not so true of hemostasis by ligation, in which it is often better to avoid the formation of large stumps by preceding ligation *en masse*, and to tie the individual spurting vessels after the severing incision has been made. And when this cut is made within the extent of the band of baked tissue, as can be done after the larger forceps has been used, there is no show of blood from either side of the incision.

4. This method of hemostasis is certainly more nearly ideal, because it does not involve the introduction of a foreign body and it is more nearly ideally aseptic, than is the use of any kind of ligature material which always implies the possibility of its not

being aseptic, either from defective preparation or from manipulation by the only omnipresent instruments (the hands), which cannot be boiled.

5. In vaginal hysterectomy it is superior, (a) in cancer cases, because it most nearly destroys the tissues which otherwise compose the stumps or pedicles and thereby diminishes the chances for a recurrence both from imperfect removal of diseased tissues and from implantation of cancerous elements. (b) In all instances of this operation it is furthermore of distinct advantage, because it does away with both a most difficult and tiresome form of ligation and also the very objectionable use of clamps, and it (c) thereby facilitates a very important part of the operation, i.e., closure of the peritoneal cavity and avoidance of the train of intestinal disorders which often follow after the sojourn of a foreign body within the peritoneal cavity. (d) By avoiding ligatures, it avoids danger of secondary hemorrhage, and also of infection from such ligatures when they become infected before they are absorbed or cast off.

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CONGENITAL DILATATION OF THE GALL BLADDER AND BILE DUCTS.

BY

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(With Two Illustrations.)

THE following interesting case recently came under my observation:

J. B., a little girl, 2½ years old, was first seen by me in July, 1902. Immediately after birth it was remarked that the child had a very large abdomen, which when measured after a few days proved to be 24½ inches in circumference. Her parents are both robust and all of her brothers and sisters, of whom there are several, are quite healthy. In spite of the large abdomen the child learned to walk at about the usual age and has been fairly active,

although the tumor interfered considerably with motion. She learned to talk and cut her teeth at the usual age and altogether developed quite like other children except in regard to the lower chest and abdomen. She has never had any urinary trouble, the urine at numerous examinations having always been found normal. She has never been jaundiced, her appetite and digestion have apparently been quite natural, and she sleeps well. No edema of the limbs has ever been noticed.

According to the statement of her mother her stools have all of her life been generally clay-colored, although after taking her through a course of medicine about a year before she was seen they appeared more natural. For a few months before operation they were reported as having been of different colors; sometimes light clay color; often, brown; and frequently the same stool would be of different colors, clay color, brown, and green. As has been stated her parents and physician noticed the enlargement of the abdomen soon after birth. This apparently slowly increased in size, measuring two inches more in circumference when she was two and a half years old than it had at her birth. The enlargement was regarded as due to ascites and after trying to cure it with medicines an unsuccessful attempt had been made to aspirate it. She had apparently never suffered any pain that could be attributed to the tumor.

The child was seen by me in consultation with Drs. Strother and Rixey of Culpeper, Va., about July 1st, 1902, and upon my advice was brought to the Garfield Hospital, October 10th, 1902.

On admission her temperature was 99.2° F., and her pulse ranged between 100 and 110. The urine was normal. Physical examination showed a well developed child with large, straight limbs and slightly sallow complexion, but whose general appearance indicated good health. The heart and lungs were displaced upward but were otherwise normal. The lower part of the chest wall was markedly bulging owing to pressure from the abdominal tumor. The abdomen was markedly distended by a cystic tumor which occupied the whole of the abdominal cavity except a narrow zone in the left flank, the hypogastric, and both iliac regions. It extended three finger breadths below the umbilicus, beyond the left mammary line, and completely filed the right upper portion of the abdominal cavity. The measurements of the abdomen after preparation for operation were as follows: Greatest girth 65.5 cm.; girth at umbilicus 60 cm.; distance from umbilicus to ensiform 16 cm.; distance from umbilicus to symphysis 9 cm.

On palpation the tumor was distinctly cystic, soft, and fluctuating. The surface presented some irregularities and, on its right side, a flat irregular mass as large as a hand could be made out. The tumor apparently occupied the region of the enlarged gall-bladder and a note to this effect was made when she was first examined. There was flatness on percussion over the whole of the tumor. The diagnosis before examination under anesthesia wavered between an enlarged gall-bladder and congenital hydronephrosis of the right kidney, but on examination at the time of operation it was perfectly apparent that the tumor was connected with the liver and not with the kidney.

The operation was done in two stages. *First operation,* October 11th, 1902. An incision was made along the outer border of the right rectus muscle, 10 cm. long and extending nearly to the costal margin. The tumor presented an irregular surface with numerous large blood vessels coursing over it. Its color was that of an ovarian cyst, except where in thin places dark fluid showed through the walls. The walls of the cyst, as determined after opening it, varied in thickness from a few millimeters to as many centimeters. The shape of the tumor was irregularly spherical and the hand inserted on all sides showed it to be free from adhesions. The liver was largely replaced by the tumor, the liver tissue being represented by a thin and small left lobe which was pushed up under the diaphragm, and an irregular mass of liver substance lying on the upper right surface of the cyst and separated from the left lobe by a space of 6-7 cm. This liver substance which represented the right lobe of the liver lay intimately adherent to the cyst and seemed at first sight to be part of its wall. It was elevated above the latter 1-2 cm. It was irregular in shape, its surface was fairly smooth, and in appearance it seemed to be normal liver tissue. The attachment of the tumor to the diaphragm corresponded as far as could be told to that of the liver. The round ligament and the suspensory ligament were attached to the upper, anterior surface of the tumor from a point about halfway between the umbilicus and the coronary ligament of the liver. The right kidney was of normal size and lay with its lower extremity on a level with the crest of the ilium. The left kidney and spleen appeared normal in size and position. The stomach lay behind and to the left of the tumor and the intestines were crowded to the left and below it. Nothing definite could be determined with regard to the bile ducts, hepatic artery, or portal vein.

The wall of the cyst was attached to the edges of the wound in

its upper portion, the lower angle of the wound was closed and gauze packed into the wound.

Second Operation, October 14th.—The patient was again anesthetized and with a thermo-cautery an incision was made through the wall of the cyst. There was an outflow of about three liters of a fluid which looked like thin bile containing mucus. Inspection and palpation of the interior of the cyst showed a fairly smooth walled monocyst whose walls were generally quite thick. No stones nor anything resembling hydatids could be palpated with the examining finger, nor were any seen. Nothing corresponding to the opening of the ducts could be felt but the examination was necessarily imperfect. The size of the abdomen decreased considerably by the escape of the cyst contents but the thick cyst wall did not collapse to the extent which I expected Bile escaped in large amounts through the drainage tube which was inserted at the second operation until about December 25th (2½ months). The child remained in the hospital about one month and was then sent back to her home in the country. During her stay in the hospital the urine remained normal, never containing bile, and repeated examination of the stools likewise failed to reveal the slightest evidence of it in them. The following was the general condition of the stools as shown by the reports of Dr. Butterfield.

"November 4th.—Stool heterogeneous, clay colored and of pasty consistency. No bile salts or pigments demonstrable by chemical or microscopical methods. Microscopically—numerous fat granules and masses composed of fat granules, are demonstrable by the use of Sudan III. and also by osmic acid. A few epithelial cells of large squamous variety and amorphous detritus are seen." According to reports received from time to time from her parents the stools remained free from bile until about December 25th. The child was weighed about one week after operation and at varying intervals until she left the hospital, and gained steadily in weight. Except the appearance of the stools there was no evidence of indigestion. The food was not restricted in quantity nor in character except that notoriously indigestible things were not given her. Her food consisted largely of milk, bread, and butter. A letter from her mother January 5th, 1903, was as follows:

"'We feel confident that the bile is now taking its natural course. After discharging a great quantity of thick, dark brown substance the cyst ceased to discharge through the false opening and the stools changed to a natural color. For over two weeks

they have been of a dark gingerbread color. The abdomen is gradually decreasing in size. The wound has healed very nicely. She sleeps well, has a good appetite and her general health seems good. Perhaps the natural opening from the bile sac to the intestine was clogged by the great quantity of thick substance. I can not better describe it than to say it looked like the slimy mud from the bottom of a spring.' "

In reply to a note of mine a letter February 25th, 1903, was as follows :

" 'Our little one is doing finely so far as we can judge. She weighed 34 pounds when she left the hospital, she now weighs 43½ pounds. The abdomen measures a fraction over 21 inches. I aim to keep the bandage comfortably tight and take it up as she contracts. The measurement was 27 inches before she came to you. The stools are of a dark gingerbread color and the bowels are quite regular. Her appetite is good and she sleeps perfectly ; complexion clear and color bright.' "

Some of the fluid obtained on the day of operation was submitted to Dr. E. A. de Schweinitz of this city for analysis, whose report was as follows :

"The specimen which you requested me to have analyzed for you a few days ago, gave the following results : Reaction of the liquid, slightly alkaline ; total solids, 2.93 per cent.; specific gravity 1010.

The liquid gave good characteristic tests for bile acids and pigments. Tested with coagulated egg albumen a very slight digestion was given by the fluid. After boiling the liquid, or upon the addition of hydrochloric acid, no digestion was noted, while the addition of a minute amount of sodium hydrate appeared neither to aid nor retard the digestive action. A slight diastatic action of the fluid upon starch was also noted. A small amount of mucin seemed to be present.

The foregoing history is practically all of the facts which I have regarding the case. The exact nature of the condition is of course somewhat open to surmise. There is not so far as I can find in the literature a similar one recorded. In considering conditions under which the case could possibly have come the following suggested themselves to me and I will give some facts and relate some of the more interesting cases which have been found to fall under these headings. The conditions were : (1) hydatid cysts of the liver or gall-bladder, (2) congenital obliteration of the common duct, (3) congenital dilatation of the gall bladder, (4) congenital dilatation

of the bile ducts, (5) congenital dilatation of the gall-bladder and bile ducts, (6) congenital malformation of the liver and bile passages.

Hydatid Cysts of the Liver or Gall-bladder.—Numerous cases of hydatid cysts of the liver have been reported and when my case was examined this was the first condition which suggested itself to me. A large echinococcus cyst of the right lobe of the liver situated near its anterior surface could have given symptoms and signs simulating those found in my patient. The large fluctuating tumor occupying the position of the liver, the robust general health of the patient, the absence of jaundice, the long duration of the disease, all suggested a hydatid cyst of the liver. The clay colored stools without jaundice naturally suggested that the tumor pressed upon the common duct without obliterating its lumen. The condition of hydatids of the liver is treated at length in text-books of medicine and I will not dwell upon it here. Hydatid cysts of the gall-bladder are very rare but authentic cases are on record. Whether the disease ever originates in the gall-bladder is doubtful, it probably being first situated in the liver and secondarily invading the gall-bladder.

Mayo Robson (Diseases of the Gall-bladder and Bile Ducts, 1902, p. 54) states that "Mr. Jonathan Hutchinson, Jr., operated on a young woman suffering from intense paroxysmal pain with high temperature and sickness, in whom the gall-bladder could be felt; it was very tense. Cholecystotomy was performed and numerous hydatids let out. An opening could be felt between the cyst in the liver and the gall-bladder. Pus escaped with the bile for a time but the patient is now well."

Barling (*Birmingham Med. Rec.*, 1897, XLII., 234) reports a case of a soldier 48 years old with an enlarged liver reaching nearly to the umbilicus. There was constipation with light clay colored or black stools, continued retching and vomiting, and severe pain and tenderness over the region of the gall-bladder. Seven ounces of urine only were passed in twenty-four hours. The man died in convulsions. The autopsy showed in the wall of the gall-bladder on the left side a hydatid cyst the size of a large orange. The cyst lay beneath the anterior margin of the liver to the left of the gall-bladder and projected below it. On the wall of the cyst just below the margin of the liver was a thick ridge of dense fibrous tissue of cartilaginous hardness. The cavity of the cyst communicated with the gall-bladder by an opening 1½ inches wide, and the gall-bladder as well as the cyst itself was full of

daughter cysts of various sizes. Several of these had blocked the cystic duct. Opening into the cystic duct was another cyst the size of a walnut.

Langenbuch (*Deutsches Med. Wochenschr.*, 1900, XXVI., Ver. Beil., 93) gives the following case: A laborer 38 years old, who for nine months had been ailing with continuous pain in his back and epigastrium, came to his clinic. Eight months before he was seen by L. the man had noticed a tumor in the right hypochondrium. Three months before this an exploratory puncture had been performed by a colleague, which revealed pus. The examination showed a tumor, the size of a child's head, which was situated in the right hypochondrium. It extended to the navel and gave a flat note on percussion. The patient did not look ill, had no fever and no icterus. The character of the fluctuation indicated an echinococcus cyst. On opening the abdomen the cyst was found to occupy the region of the gall-bladder. The tumor was densely adherent to the omentum. The gall-bladder as an entity had disappeared. On opening the large cystic tumor a number of small cysts poured out. These showed no hooklets. The patient recovered.

Pinkerton, Huber, and a few others report cases of hydatids of the gall-bladder.

Mayo Robson gives in his book several cases of blocking of the bile ducts by hydatids from the liver.

Although such cases are extremely interesting, echinococcus disease was ruled out in my case because in it the condition had existed at birth and there was no evidence of the disease in the mother. While it is conceivable that hydatids could occur in the fetus it is extremely improbable and I can find nothing on the subject in such works as I have been able to consult.

Congenital Obliteration of the Common Duct.—A number of such cases have been reported but in nearly all of them a tumor was not present. Oxley (*Lancet*, 1883, II., 988) however reports the following interesting case. A female infant five weeks old was seen by him. She was emaciated, markedly jaundiced and had a large abdomen. The urine was stained with bile, and the stools were whitish in color. The percussion note over the whole abdomen with the exception of the left lumbar region was flat. Puncture in the right lumbar region gave 1080 ccm. of bile. After a few days the tumor increased in size and a second puncture brought away 500 ccm. of bile. Death occurred seven days after the first puncture. *Autopsy.*—On the border of the liver a tumor

the size of a cocoanut was found. It was intimately adherent to the peritoneum behind and to the duodenum in front. The gall-bladder was of normal size but without the cystic duct. The hepatic duct emptied into the tumor. The papilla duodenalis was present but the opening was absent. The tumor was the dilated common duct.

In these cases of congenital obliteration of the bile ducts, icterus, bile stained urine, emaciation, vomiting, and white stools, were uniformly present, and hemorrhages from the intestinal canal, the navel, the nose, and subcutaneously were generally seen. Convulsions were, at times, noted, and the patients usually died in coma. No case has been seen where the child lived to be over eight months of age. It is thus apparent that the clinical course of the disease in my case ruled out this affection

Congenital Dilatation of the Gall-bladder.—I have been unable to find in the literature a case in which there was at birth a marked enlargement of the gall-bladder. There are numerous cases on record where in adults the gall-bladder was enormously enlarged and I will briefly report some of the more remarkable ones here as they throw a light upon the actual condition in my case.

Lawson Tait (*Lancet*, 1889, I., 1294) reports a case of distended gall-bladder that he took for a parovarian cyst. It occurred in a woman 40 years of age. There was a gall-stone obstructing the cystic duct. He described the fluid in the gall-bladder as clear and gluey in character. There were eleven pints of it and the gall-bladder was so low in the abdomen that the abdominal incision was made in the median line below the umbilicus.

Alexander (*Liverpool Med. Chir. Jour.*, 1888, VIII, 508-514) reports a case of a physician, who after two or three previous attacks of gall-stone colic was aspirated of 4, 10, and 24 oz. of bile on separate occasions within a few days of each other. He was finally operated upon and eight pints of bile were evacuated. A cholecystotomy was performed with success. The symptoms were pronounced jaundice, bile stained urine, itching of the skin, dry mouth and tongue, fever, rapid and feeble pulse, anorexia, clay colored stools, vomiting, and constipation. The sac extended up the front of the liver to the diaphragm; to the right he felt no limit; to the left the parts about the hilum of the liver were felt but no gall-bladder could be made out distinct from the cyst. He says "The removal of the first small quantity of bile was followed by the passage of some by stool, and when the sac was emptied all the bile soon flowed by its natural channel. Evidently the pressure

of the large sac produced obstruction of the common duct, which the emptying of the sac relieved; but how or why the gall-bladder became so distended is a matter of surmise as no stone could be felt, and a cure fortunately resulted without much exploration. A catarrh of the common duct that got well before operation would also explain the case."

Kocher in 1878 operated upon an emphysema of the gall-bladder as large as a man's head.

Osler saw a case where the gall-bladder was adherent to the lateral ligament of the uterus, while Waring mentions a specimen in the St. Bartholomew's Museum where the lower part of an enormously distended gall-bladder formed part of the contents of a femoral hernia.

Erdmann (*Virch. Archiv.* Bd. 43) observed a musician aged 24 years, with an enormously dilated gall-bladder. The man first noticed the tumor eight months before he was seen by Erdmann. He was pale, fat, and not jaundiced. The tumor was distinctly cystic, more prominent in the right hypochondrium, and gave a flat note over the whole of it. Tympany was elicted by percussion over a narrow zone of the abdomen in each lumbar region and immediately above the symphysis. Change of position of the patient did not affect the percussion note. The cyst was aspirated and the enormous quantity of 60-80 pounds of fluid was withdrawn. The attempt was made to prevent the recurrence of the fluid by the pressure of a bandage and by rest, but the fluid re-accumulated in a week. The man was finally discharged cured. Analysis of the fluid showed it to be an albuminous fluid; after precipitating the albumin it gave the tests for bile. It was regarded as a hydrops fellæ vesicæ due to catarrhal swelling of the mucous membrane of the cystic duct.

Congenital Dilatation of the Bile Ducts.—Oxley's case is the only one which I have found in the literature where there was a considerable dilatation of the bile ducts which was probably congenital. Several cases are on record where the bile ducts were enormously dilated. The condition came on at various ages. Mayo Robson (Diseases of the Gall-bladder and Bile Ducts, 1902, p. 138) observed a man aged 25 years "who had suffered severely from gall-stone symptoms, associated with a tumor supposed to be a dilated gall-bladder. The gall-bladder, however, was found to be small, and situated external to the cystic tumor, which proved to be a dilated cystic and common duct, at the lower end of which was a gall-stone the size of a pigeon's egg, which broke into frag-

ments as the duct was about to be incised for its removal. The dilated duct was opened and stitched to the aponeurosis in the same manner as one fixes the gall-bladder in cholecystotomy. The patient is now well."

Edgeworth (*Lancet*, 1895, I., 1180) reports the following instance of dilatation of the common duct. The patient a girl of $4\frac{1}{2}$ years had been quite well until six months of age when she became jaundiced. This lasted two or three weeks. Since that time she had slight recurrent attacks of jaundice every six months or so. Otherwise she had been well, and developed normally. About one year before admission, however, when $3\frac{1}{2}$ years old "the child's stomach began to grow big" and this enlargement slowly increased, though none the less the girl appeared to be in good health until about four weeks before when she became thinner in body and face. On examination the patient was found to be well grown for her age and moderately well nourished. There was a slightly yellow tint to the conjunctivæ and skin. The urine contained a small amount of bile pigments and no albumin. The stools were bile-stained. The liver was enlarged, the upper limit of dulness extending to the upper border of the fourth rib in the nipple line, and its lower edge in the epigastric notch being lower than normal. The surface of the liver in the latter situation felt smooth and firm. Immediately beneath the abdominal wall, in portions of the epigastric, umbilical, right hypochondriac, and lumbar regions an intra-abdominal tumor was found measuring about three inches in transverse and three and a half inches in longitudinal diameter, with the lower edge one inch below the level of the umbilicus. The tumor was slightly movable laterally, of rounded shape and smooth surface, with an elastic feel like a tightly distended bladder. Fluctuation was doubtful. The tumor was dull on percussion and the dulness was continuous with the liver above. Spleen enlarged, no ascites. It was considered to be a distended gall-bladder. The tumor was incised, 29 ounces of normal bile were evacuated, and a drainage tube inserted. The child died in one week and at autopsy the gall-bladder was found very small and contained a little inspissated bile. The cystic duct was obliterated, a fibrous cord representing it. The lower end of the common duct was stenosed; its lumen admitted a hair-pin. The middle portion of the common duct was so distended as to form the sac which had a thick wall consisting of layers of fibrous tissue. The common duct above this and the hepatic duct were somewhat di-

lated as were also the biliary ducts. The liver was enlarged and was in a state of biliary cirrhosis. The cause of the condition was not clear, but he thought it due to repeated attacks of catarrh of the ducts.

Raynaud and Sabourin (*Gaz. hebd. de Méd.*, Paris, 1879, 2 S., XVI., 282) detail a case of enormous sacculated dilatation of the bile ducts in a girl of 26 years. Gall-stones were present.

Barlach (*Deutsches med. Wochenschr.*, No. 31, 1876) observed a thick-walled cyst almost as large as a child's head formed by a dilatation of the common duct. The cyst was adherent to the lesser curvature of the stomach over an extent of 11 cm. The cyst communicated with the stomach by a perforation 6 cm. long. It contained bile and a small piece of bread. The atrophied gall-bladder formed an appendage of the upper part of the cyst and communicated with it by a small opening. The hepatic duct opened into the cyst. The ductus choledochus was surrounded and occluded in its lower portion by a fleshy tumor, while the upper portion was dilated to form the cyst.

Freichs (*Klinik d. Leberkrankheiten,* II, S. 443) thus describes a specimen in the anatomical museum in Breslau which was taken from a woman who died from closure of the ductus choledochus: The gall-bladder is normal in shape. The neck of the bladder led into a wide membranous sac, 8 inches long and 5 inches wide, filled with thin bile, and which proved to be the greatly dilated cystic duct and ductus choledochus. The sac extended to the duodenum but was here entirely closed. The situation at which the ductus choledochus opens was marked by a slight prominence in the interior of the duodenum. The mouth of the pancreatic duct was free. No boundary could be discovered between the cystic duct and the ductus choledochus as they were equally dilated; it was indicated only by the entrance of the hepatic duct into the sac.

Terrier (cited from Mayo Robson) describes three cases where the cysts formed by the dilated common ducts were drained. They were all mistaken before operation for distended gall-bladders.

Swain (*Lancet,* Mar. 23d, 1895) reports the following case: A girl 17 years old had been ailing for two years. Eight months before he saw her she had become jaundiced and had noticed for the first time a swelling in the region of the liver. She had been treated with drugs without effect; the jaundice had deepened, and the swelling had increased in size. At the time when seen by

Swain she was deeply jaundiced, the urine was markedly stained with bile, and the stools were white. She had never suffered any particular pain nor had she been nauseated. She was much emaciated. On examination there was found a large tumor reaching from the edge of the liver to the brim of the pelvis, and extending obliquely across the abdomen three inches to the left of the umbilicus. The whole tumor was absolutely dull on percussion and the merest tap on it produced a thrill of fluctuation. It was thought to be a distended gall-bladder and he aspirated six pints and one ounce of fluid which he says was characteristic of hydrops fellæ vesicæ. No evil results followed the aspiration apparently and five days later the patient was again seen with the swelling as large as ever. She was operated upon, 7 pints and 12 ounces of fluid being removed. The cyst was found to be firmly adherent to the intestines in all directions. No stone was found, although the canula had repeatedly struck one at the aspiration. The finger, passed into the cyst, could be carried into a passage with a crescentic opening above and towards the middle line. He took this to be the common bile duct. He at first thought the cyst to be the dilated gall-bladder, but on more careful search he found this structure in its normal position, pale, and containing no bile. He attached the cyst to the jejunum with a Murphy button. She did not pass the button; but two months after operation (at the time when the case was reported) the stools were normal, the jaundice had disappeared, and the urine had less color. Her temperature, at times, was elevated, reaching 101°-102° F. He considered the cyst to have been a distended common duct, but also asks the question if it could have been a second gall-bladder, one case having been reported with a double gall-bladder.

Congenital Dilatation of the Gall-bladder and Bile Ducts.— This was the next condition which I considered in looking for an explanation of the condition in my patient. Although I can find no case where this condition existed at birth, several very interesting ones where it occurred in after life are on record.

W. Hale White (Allbut's *System of Med.,* Vol. IV, 203) says "A remarkable instance is recorded by Bright in which the parts about the entrance of the common duct into the duodenum were thus hardened and matted together." (He is speaking of non-malignant obstruction of the duct.) "The common, hepatic, and cystic ducts were dilated to the size of a healthy gall-bladder; and the gall-bladder was so dilated that, both during life and after death, it almost reached the crest of the ilium. The ducts in the

liver were dilated into a number of vesicles. The pancreatic duct was also much dilated. The patient, a woman of fifty-six, gave a history of spasmodic pains five years before admission. She was jaundiced and had great hepatic pain and pale stools for 4½ months before she died drowsy from cholemia. She was very sick and wasted much but was never of an olive-green color; in fact jaundice was stated to be brilliant a few days before death.
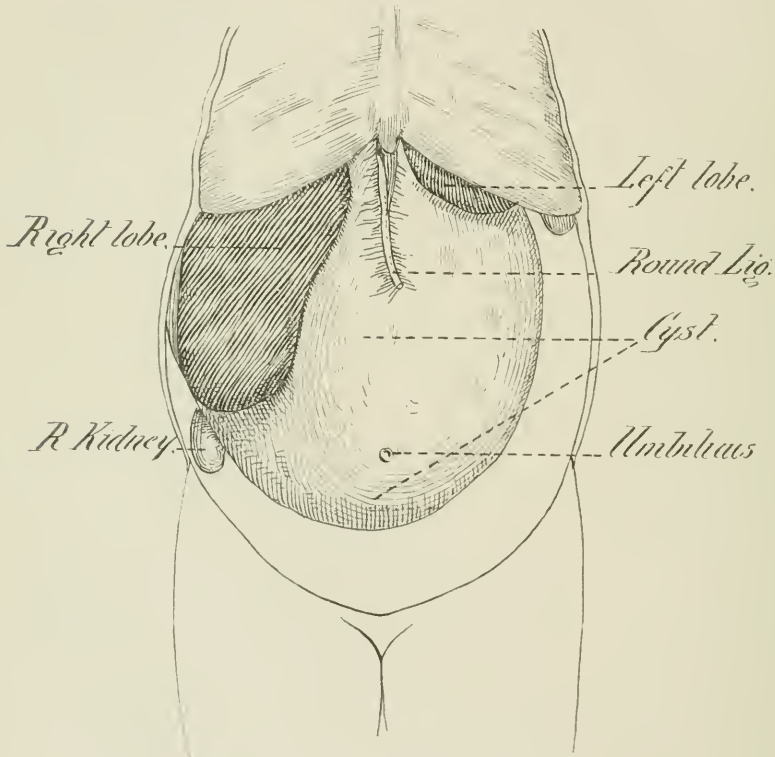
Fig. I.—Vincent's Case; Dilatation of Gall-bladder.

Vincent (*Rev. de Chir.*, 1888, VIII, 753) reports the following very interesting case:

A girl 8½ years old with a good family history came to him complaining of an abdominal tumor. Six months previously her mother had noticed that the child's abdomen was larger, but the patient had complained for only three months of discomfort from the size of the tumor and the pain in it. The pain had never been acute and was rather a feeling of soreness than actual pain. She had suffered with constipation alternating with diarrhea.

Nothing resembling gall-stones had ever been seen in the stools and the latter had not been observed to be clay-colored. The child was anemic, poorly nourished, and slightly jaundiced. There was a continuous elevation of temperature of 100.5°-102° F. The stools were hard and blackish in color. The urine, 300-400 c.c., was albuminous and contained bile.
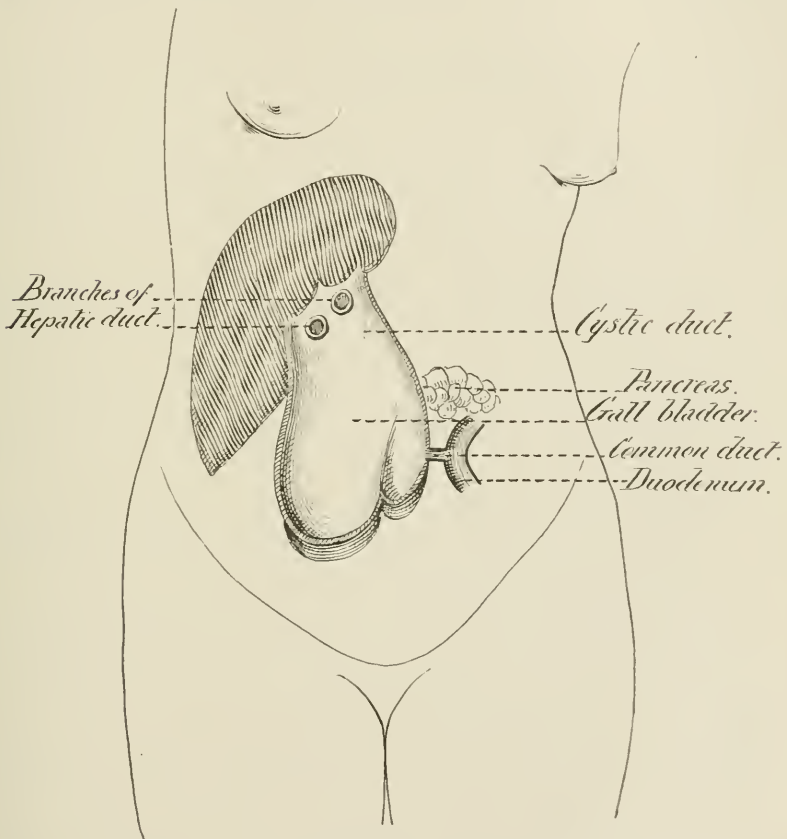
Fig. II.—Author's Case; Congenital Dilatation of Gall-bladder and Bile Ducts.

Examination of the abdomen showed it to be fairly uniformly distended but rather more prominent on the right side. A ridge extended from the right hypochondriac to the left iliac region. The tumor was fluctuating, flat on percussion, and extended two finger breadths to the left of the median line and within three finger-breadths of the symphysis.

The child was kept under observation some time and after aspirating the cyst, when 160 c.c. of the bile were obtained, a

cholecystotomy was finally done.   Three litres of fluid were ob-
tained.

The operation and the autopsy (for the child died ten days after
operation) showed that the gall-bladder was tremendously dilated
and hypertrophied, its walls being ⅞ mm. in thickness.   The
cystic duct was obliterated, forming a part of the cyst wall.   The
hepatic duct was in the same condition and likewise helped to
form the cyst; the openings of its two branches admitted the
thumb.   Most of the ductus choledochus also took part in the
formation of the cyst, the duct being represented by a portion
15-20 mm. long, its opening into the cyst being closed by a valve-
like projection of mucous membrane.   While this fold of mucosa
closed the duct above, a probe could be passed from below into
the cyst.   The pancreatic duct was ligated.   The pancreas and
spleen were enlarged.

Vincent considered that the trouble had arisen from the pres-
ence of a stone or lumbricoid worm in the common duct, and that
after its presence had caused the dilatation of the gall-bladder and
ducts the body had passed into the duodenum.   The valve-like
fold of mucous membrane in the common duct had caused the
continued damming back of bile.

Congenital Malformation of the Liver and Gall-Bladder.—
Nothing which I have been able to read on the subject warrants
the belief that a condition such as was found in my case has ever
been noticed or would occur as a malformation *per se.*

Reflections on the Case.—The case which I have reported is
apparently unique in being the only one ever observed of extreme
congenital dilatation of the bile passages producing a marked de-
formity in the liver and ending in recovery.

The condition found in the liver, where the lobes were apparent-
ly entirely distinct (they being separated by a space of 6-7 cm.
which was occupied by the cyst), was probably due to the com-
mencement of the obstruction during the early months of intra-
uterine life.   The development of the liver begins very early ac-
cording to Minot.   "During the second month it becomes of rela-
tively enormous size, so that during the third month it extends
far into the hypogastric region and fills out the greater part of the
abdominal cavity.   After the fifth month the intestines and other
viscera overtake the liver, but at birth the liver makes two thirty-
sixths of the total weight, as against one thirty-sixth in the adult."

"Bile is formed as early as the third month of intra-uterine
life" (William Hunter).   Minot makes another statement which

has an important bearing on the case. It is as follows: "Another important factor in the development of the liver is the atrophy of the hepatic cylinders in certains parts as discovered by Toldt and Zuckerkandl. They have observed this atrophy near the lateral and suspensory ligaments, next the gall-bladder, and in the neighborhood of the umbilical vein. When the atrophy begins the liver cells become finely granular, opaque, and lose their outline; the protoplasm breaks down and disappears; the nuclei persist a little longer. Changes also occur in the gall ducts of the atrophying region."

Assuming that, owing to an obstruction in the outflow of bile in the early months of the development of the fetus, there was the beginning dilatation of the ducts and gall-bladder, we can readily account for the deformity of the liver that was found in my patient. Viewed in the light of the cases quoted at some length in this paper the following conclusions seem warranted: (a) that the cyst was a tremendous dilatation of the gall-bladder and bile ducts beginning at an early period of intra-uterine life, (b) that the common duct was partially obstructed, probably at first by a catarrhal inflammation or calculus and later perpetuated by the dragging down of the heavy cyst; (c) that the deformity of the liver was produced by the pressure of the tumor causing interference in its development and by atrophy of the liver cells.

Treatment.—The question which confronted me at the time of operation was what should be done. The results show that the proper treatment was carried out. My determination at the operation was to drain the cyst, hoping that the dilated gall-bladder and ducts being relieved of their contents would contract to their normal dimensions and that the bile would pass along its natural route into the intestine. Should the gall-bladder contract to a small size, the fistula remain open, and the child suffer from the absence of bile in the intestinal tract, I then proposed to do a cholecystenterostomy. My reasons for not doing this at the time were two: (1) it would have been difficult to make the opening at such a point in the gall-bladder that as the parts contracted to their normal size the gall-bladder and intestine would retain their proper relations to each other, and (2) with the large thick-walled cyst which extended below the umbilicus the tendency would have been for it to become the receptacle of the intestinal contents and to have ended the life of the patient by sepsis. I may state that I am still keeping in touch with the patient and if trouble occurs a cystenterostomy can now be done with greater hopes of success.

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TUMORS OF THE ROUND LIGAMENT OF THE UTERUS.[1]

BY

DUFF G. LEWIS, A.B., M.D.

THE round ligament seems to have engaged the attention of the medical world of late, chiefly as means to correct posterior displacements of the uterus through various operative procedures thereon. I invite your attention to it as an organ capable of causing disease and suffering through the neoplasms to which it is subject.

Viewing this little band of unstriated muscle and fascia from the standpoint of its gross and minute anatomy, its relation, its origin and its insertion, we can predicate at once—considering it, with a desire to study its pathological affections, the possible forms of neoplasms which may involve it. There have been occasions, however, when surgeons have found very unexpected diseases arising within or from this organ, the etiology of which has caused them to indulge in a great deal of speculation. The question of diagnosis in the large majority of cases reported, has sufficiently baffled the operators, that the exact nature of the tumor was only determined after the incision and exploration had been made. In cases of tumors involving or arising from the intra-abdominal portion we find them being confused with pus tubes, ovarian or parovarian growths, broad ligament tumors and even pedunculated fibroids of the uterus; and indeed the symptomatology of intra-abdominal round ligament growths so closely simulates that of these affections, it is no wonder that such errors are made.

Neoplasms of the extra abdominal portion of this ligament have been most frequently taken for the various forms of incarcerated hernias or growths originating in the lymphatics of this region. Some of us may think that in these affections such mistakes could not be possible, though I dare say, there are among us, some at least, who have had to modify their diagnosis previously made, to suit the conditions found before the operation has been completed. The explanation for this, I take it, can be found in two

causes, (1) In the comparative infrequency of such affections, thereby lessening the opportunities for clinical learning, and (2) in the fact that the symptoms of these tumors simulate to a certain extent the more common diseases found in the vicinity of the round ligament.

While such mistakes do not appear at first thought to have much significance so far as the patients' welfare or the surgeons ability to render relief is concerned, yet there are instances where a correct diagnosis is of vital importance to health, comfort and life even, of the patient, as well as to the reputation of the surgeon. How often do we find the physician, when a case of tumor of the groin is brought to him make a hasty diagnosis of hernia, perhaps do damage by violent but unnecessary and unsuccessful manipulation in his efforts at reduction and finally advise the patient to wear a truss, which she cannot tolerate and in time has to lay aside. Sänger (*Arch. für Gynaekol.*, 1883 Bd., 21 : S. 278) reports a case of fibro-sarcoma of the round ligament which terminated fatally in consequence of an incorrect diagnosis. A young woman, 17 years old with a small tumor in the right groin came under his observation. He diagnosed hernia and advised her to wear a truss, which was done for four years; at this time she had to abandon it as it caused her too much pain to continue its use. About this time he saw her again, when the tumor had attained the size of an infant's head. He now diagnosed it as a cysto-fibroma, which conclusion he had to change to that of fibro-sarcoma after operation and examination by a microscopist. The patient did not survive the operation.

Here is a case of which it is not too much to claim that, had the correct diagnosis been made when the patient was first seen and the growth been removed, the patient would have enjoyed good health, so far as this particular trouble was concerned, for the rest of her life. It is also somewhat mortifying to the surgeon to have to admit to the patient and her friends that after all it was not a hernia, but a tumor of the round ligament, which ailed her. So at once we see the importance of making in these cases as elsewhere a correct diagnosis; for on this hinges correct advice and treatment.

The most interesting features about these growths, to us as surgeons concern their etiology, pathology and diagnosis.

I shall confine my remarks, in the main part of this paper to those tumors arising from that portion of the round ligament, extra abdominal, as the two cases I present are of that origin.

The first specimen was removed from a lady—Mrs. T., aged 28 —September 6th, 1901, at Sibley Hospital. She had been married eleven years. No children, no miscarriages. Menstruation normal. Her previous health had always been good, and she was at this time a well nourished woman, in perfect health, save for the presence of a small tumor the size of a walnut in the right groin and extending into the right labium majus. This, she first noticed the first year of her married life, eleven years previous to her admission to the hospital. At that time it was about half the size that it was when she consulted me, and the enlargement increased slowly.

On examination, I found a firm knotty mass over the external abdominal ring extending down into the right labium majus. It was free from the skin but anchored to its site. There was no impulse on coughing, no history of its ever having been reduced, no nausea or sickening sensation on pressure; no history of bowel obstruction, and no tympany on percussion. On pressure it was decidedly tender and when accidentally struck, as patient said it had been on several occasions there was present considerable pain, lasting for some hours.

The femoral lymphatic glands could be distinctly felt and were not enlarged.

The tumor was not altered at the menstrual epoch.

As this was my first case I was somewhat puzzled in forming a diagnosis, but gave it as a probable tumor of the round ligament.

An incision was made rather high, extending from a point over the internal abdominal ring down over the prominent portion of the tumor. A mass of fat was first encountered and upon further dissection quite a bunch of grape like bodies was found attached firmly to the crest of the pubis, along the insertion of the round ligament. When the neoplasm had been removed, I discovered I had detached the ligament, and fixed it by catgut suture into the internal abdominal ring. The wound was closed with a sub-cuticular silk-worm gut suture, and healing was prompt and satisfactory. I saw her a few days ago; she has suffered no trouble or inconvenience since the operation.

On examination the growth was found to be made up of fat, abundantly placed about five or six small tumors, each having a smooth, grayish, fibrous envelope, which when opened presented a clear mucilaginous fluid. I submitted the specimen to Dr. Wallace Johnson for a microscopic examination. He reported it to be myxo-fibroma.

Guinard reports a case of fibro-myoma of the round ligament in the *Revue de Chirurgie,* Paris, 1898, where the tumor was similarly situated and composed of multiple tumors, of very firm consistency and of sizes varying from that of a pigeon's egg to that of a walnut, grouped in such a manner as to suggest a small cluster of grapes. His observation led him to believe that the small tumors, in the beginning migrated down the ligament and emerged at the external abdominal ring, finally becoming anchored at its insertion to the crest of the os pubis. There was nothing about the history of my case to lead me to think that there was any migration of the tumor.

CASE II.—April 2nd, 1902.—Mrs. S., age 37, white. Mother died at age of 59 from tumor of breast, father died at 59 from apoplexy, three brothers living and in good health. Menstruation began at 14; was always regular and comparatively free from pain. General health good; married at 21; four living children, one stillborn; all labors easy including last, when she was carrying a large ovarian tumor. This tumor was removed at the time I obtained the specimen, a myxo-fibroma of the round ligament.

In June, 1901, the patient noticed a swelling which she supposed to be a hernia in the right groin; since that date it had steadily grown until it reached its present size. This growth caused her much pain, which had increased very markedly within the last six months previous to her consulting me.

On examination, I found her to be a rather nervous woman. She had lost considerable flesh within the past year. Her abdomen was much distended with a large multilocular ovarian cyst, and in her right groin was an oblong swelling, firm and unresisting to the touch, occupying the region of the right inguinal canal. This growth was taken for a hernia, not only by herself but by her attending physician as well, and was treated as such by the use of a truss. At the time I did not make as careful an examination as I should have done, and was rather inclined to look upon it as an incarcerated omental hernia.

When I opened the abdomen and had removed the large cyst of the right ovary, I had an opportunity to inspect the tissues about the internal ring of the affected side. I was surprised to find the absence of any gut, omentum or other tissue save the ligament leading into the inguinal canal; and no appearance of disease was present. After closing the abdomen an incision was made over the whole length of the tumor. This was dissected up without any difficulty to the internal ring, where the ligament

appearing healthy, was severed and the stump secured in the internal ring with a few catgut sutures. The wound was closed in the usual way and the patient made an uneventful recovery. She is in perfect health to-day. This specimen has a fibrous capsule, is about two and a half inches long by one half inch on cross section. It is of a grayish color and has within it, as one can see upon examination, large cavities containing a viscid mucilaginous fluid. I submitted this to Dr. J. B. Nichols for a microscopic examination and he reported it to be a myxo-fibroma.

I have seen one other case which I supposed to be tumor of the round ligament, but did not have the opportunity to verify it as the patient declined any operative interference.

In looking over the literature on this subject I find very few cases of such growths reported in comparison with the numerous cases of tumors of other organs with which the journals abound.

FREQUENCY.

Tumors of the round ligament are comparatively rare, or else operators have been very derelict in reporting them. I have found reports of cases of fibroma, fibro-myoma (and these are the most common forms of new growths affecting the round ligament), fibro-sarcoma, dermoid cysts, adenomyoma, cysts, lipomas and other affections simulating new growths such as hematoma and abscess. I find no reports of myxo-fibroma, however, though in Keating and Coe's work on Clinical Gynecology it is stated that such cases have been reported. They observe also, that "the enlargements found in this region are cysts, fibro-myomata and fibro-sarcomata." This of course is an incomplete list. The carcinomata have been observed, but we would not expect to find them here as there is no normal glandular tissue present for them to spring from.

ETIOLOGY.

Here as elsewhere we know little of the exact etiology of these growths. Extra-abdominal tumors of the round ligament have been observed at all times of life previous to the menopause. Pregnancy does not seem to have any etiological bearing. It is not so with regard to menstruation however; most observers note painful symptoms in the tumor at the menstrual period. Menstruation provokes a temporary increase in volume of the neoplasm. We have nothing to make us agree with Sänger that

the traction of a displaced uterus may play a causative rôle. To trauma we are not justified in ascribing a causative action.

To summarize: extra abdominal tumors of the round ligament appear most frequently in the earlier part of adult life, located more often on the right side, where we find most of the affections of the inguinal region, than on the left. They are often influenced in an unpleasant manner by menstruation, sometimes by the meno-pause in a decided way.

PATHOLOGICAL ANATOMY.

Tumors of the extra-abdominal portion of the round ligament present variable sizes, varying from a small kernel to that of an infant's head.

Some are situated directly over the external orifice of the in-guinal canal, others at the upper extremity of the labium majus, while some are found where one can find no trace of normal round ligament tissue, *c.g.*, about and below the labium majus. The larger extend from the upper part of the labium majus into the abdominal cavity, traversing the inguinal canal. Their form is equally variable. Most often single, they are usually rounded, oval or pyriform; their surface is smooth. In rare cases we find them elongated, cylindrical, taking the form of the little finger. In a few cases, the tumors are multiple, as in the first case here presented. In some instances the pedicle of the tumor, distinct from the round ligament, is attached to this organ. When the tumors are multiple the round ligament dissociates itself into more or less numerous, fibrous tracts, and we find a veritable "bunch" of growths suspended from the terminal end of the ligament. The extra-abdominal tumors of the round ligament developing between the external ring of the inguinal canal and the labium majus, have always a very distinct fibrous capsule in which they are more or less motile; the envelope is nothing more nor less than the fibrous covering which normally surrounds the inguinal portion of the round ligament, enclosing a branch of the genito-crural nerve. It is by means of this covering that the neoplasms become attached to the normal tissues which we find in these parts. We indeed, sometimes find pathological attachments, as where tumors are at-tached to the wall of a hydrocele of the canal of Nück or to the hernial sac in company with the ovary, broad ligament, etc. The macroscopic appearance varies according to the histological na-ture of the growth. The fibro-myomas of the round ligament are

like those of the uterus, susceptible of undergoing varied degener-
ations, benign and malignant. The lipomas present themselves
under two different forms (1) when the tumor is developed in the
continuity of the round ligament with normal elements of the
ligament running through it, (2) when the growth is developed
at the expense of the fatty mass of the labium majus. It is not
necessary to consider the sarcomas and carcinomas, as their
pathology is doubtless well known to you. As to the source of
the epithelial tissues in carcinomas and myxomas, it is still an open
question. Cohnheim's theory of dormant, misplaced, embryo-
logical cells seems to furnish the most satisfactory explanation.

SYMPTOMS.

The appearance of the tumor is sometimes preceded by more
or less acute pain, situated in the groin and radiating to neighbor-
ing regions, appearing periodically after fatigue, or at the men-
strual period. After a variable time, some months, perhaps years,
the neoplasm manifests itself. It is often the case, that the pres-
ence of the tumor in the inguinal region is the first thing to attract
the attention of the patient; the suffering comes on later. The
affection presents itself under different aspects, according as the
tumor occupies the inguinal region or is situated in the labium
majus. In the first case one sees the coverings of the inguinal
canal normal, but raised by a mass of greater or less volume, the
long axis corresponding with that of the inguinal canal. In the
second the labium majus is distended, drawn down by the weight
of the tumor which it encloses; it affects the form of a scrotum
or a pear suspended by the stem from the external orifice of the
inguinal canal; in the structure of the skin a network of large
meshes of distended veins is manifest: according to the volume
of the growth the fold of the corresponding labium minus is more
or less effaced. The tumors located in the labium majus are more
often of considerable size, at times reaching that of the head of
an infant two or three years old, descending to the inferior third
of the thigh. On the contrary tumors of the inguinal region rarely
exceed the size of a hen's egg.

Their consistence varies, many times being of a fibrous or elastic
hardness, they are at others soft in places or even fluctuating in
certain points. Lipomas can present a false fluctuation: their
shape is globular or elliptical, at times more or less regularly lobu-
lated. Their surface is smooth. In a few cases we find a true

cluster of five or six tumors more or less independent of each
other. These tumors are irreducible; while reducibility has been
recorded, it occurred only in the early stage of development. They
undergo no change on palpation or under efforts.

Sometimes we find a very distinctly hard cord which at one
end adheres to the tumor and with the other penetrates the ex-
ternal orifice of the inguinal canal. We are not always able from
a clinical examination to make out the existence of this cord.

The tumor, usually painless, becomes at the monthly periods
the seat of a very sharp pain, which radiates into the correspond-
ing lower extremity, the lumbar region and the pelvis. At this
time palpation becomes painful, and the neoplasm shows also a
transitory increase in volume. In the interval between the menses
the tumor is generally painless; sometimes, however, without ap-
preciable cause it becomes little by little distinctly painful.

To the permanent or periodic suffering we must add the dis-
tress, more or less considerable, from walking in cases where the
tumor occupies the labium majus.

DIAGNOSIS.

The diagnosis of this affection has been studied in a remarkable
way by Duplay, and very thoroughly by Sänger and Guinard. It
often presents the most serious difficulties. Out of eighteen cases,
a diagnosis was made in twelve, and three times only in the twelve
was the diagnosis of tumor of the round ligament verified by the
operation.

Duplay divided the tumors into two categories; those which
are provided with a pedicle, which running off from the tumor,
can be traced through the inguinal canal, and those which at the
clinical examination are devoid of a pedicle.

The pedunculated tumors of the inguinal region and of the
labium majus are the most common type.

In the later stages the tumor presents all the characters of cer-
tain irreducible omental hernias; that is to say hardness, absence
of impulse on coughing, motility more or less extensive in the
transverse sense. We remember that omental hernia is often
mammillated, that it has a thick omental cord which in some cases
can be felt behind the abdominal wall.

The painful phenomena which manifest themselves after a
monthly period in the inguinal region have no pathognomonic
value; they appear with the same characters and often with more

intensity in the case of ovarian hernia. In such cases the bi-
manual examination will determine the 'presence or absence of
the suspected ovary in the minor pelvis; moreover, a hernia of
the ovary carries with it the broad ligament from which a lateral
displacement of the uterus toward the involved side results.

By vaginal examination we can with equal certainty recognize
a hernia of the tube or uterus.

The subserous lipomas do not give an impulse on movement
and to the touch; they are characterized by a partial reducibility,
and they are at times the seat of more or less severe pain just as
all tumors of the round ligament are.

Beyond functional symptoms we know of no sign which will
enable us to differentiate a fibroma of the round ligament from
one developed in the hernial sac. A hydrocele of the canal of
Nück can simulate a cystic tumor of the round ligament; how-
ever, if one considers that cystic tumors are more the result of
histological modifications of solid tumors one can hope to find in
these cases by the side of distinctly fluctuating points, areas more
resisting. In the inguinal region it is with the tumor of glandular
enlargement that we may often confound a neoplasm. The ab-
sence of any pedicle leading into the inguinal canal, the globulated
surface with grooves more or less deep, the displacement ex-
tremely easy in every direction or on the contrary its absolute im-
mobility may aid us in differentiating. In all cases of tumors
springing from the round ligament and distending the labium
majus one can easily discover a pedicle occupying the inguinal
canal, that is, the ligament itself. When the tumor has no pedicle
and occupies a long portion of the round ligament assuming its
location and form the diagnosis is easy.

DIFFERENTIAL DIAGNOSIS.

A tumor of the extra-abdominal portion of the round ligament
is differentiated from: (1) an ordinary reducible inguinal hernia
of bowel or omentum, or both, by the absence of reducibility, im-
pulse on cough and tympany on percussion; (2) from an incar-
cerated, irreducible or adherent hernia, by the absence of impulse
on coughing, history of reduction on previous occasions, *i.e.,* be-
fore reduction becomes impossible, absence of any history of
nausea and vomiting; (3) from a strangulated hernia, by the
absence of the signs above narrated and the grave symptoms in-

cident to all bowel strangulation, shock, increased pulse rate, nausea and vomiting.

PROGNOSIS.

The prognosis depends in the first place here as in all cases upon the histological nature of the neoplasm. It is generally the case that the most serious effects of the tumor are pain more or less acute, constant or periodical, and more or less considerable discomfort. Tumors of this region though benign at first may undergo malignant degeneration, and thereby render the prognosis very grave.

TREATMENT.

The only treatment applicable to these tumors is extirpation, and this should be done early or as soon as the tumor is recognized. Some operators after having ligated the round ligament have simply abandoned it in its place, others have fixed it to the wall of the canal. This last manner of operating seems preferable, except when the uterus has been deviated to the affected side and one proposes by abandoning the ligament to remedy that deviation.

TREATMENT OF CLUB-FOOT IN CHILDREN UNDER THREE YEARS OLD.

BY

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It may appear to many of my professional brethren that the presentation of so old a topic as the treatment of club-foot will only be a repetition of methods of procedure well established and practiced with variations in accordance with modern surgery, but those of us who have opportunities of seeing numerous cases of this altogether preventable and curable deformity think no apology necessary for again bringing forward this old subject. When one considers the numerous methods that have been introduced for the correction of this deformity, each one to be abandoned for the adoption of something new, it would appear that we have not yet

discovered one that will give perfect results in every case in the hands of the general practitioner. The main object of this short paper is to bring to the attention of the physician a method of procedure that will undoubtedly give perfect results if treatment is begun at once and faithfully carried out until the danger of relapse is passed; this method is described further on in this paper when I come to speak of the treatment in detail.

The term club-foot is properly applied to a deformity characterized by an inversion, torsion, and depression of the front part of the foot with an elevation of the heel. In walking on a foot thus deformed the weight of the body is borne on the outer border of the foot, which tends to increase the deformity at each step of the child.

Club-foot is not an uncommon deformity and was mentioned in the literature of Homer. It is an unexplainable fact that it is almost twice as common in boys as in girls.

The anatomy of club-foot is very plain, and a knowledge of it is very essential to the successful treatment of the deformity, but as anatomy is not a very attractive study to the average physician a description will not be attempted here.

The deformity is usually congenital, but it is often acquired after the impairment of muscular power which takes place in paralysis, chiefly in anterior-poliomyelitis. In regard to the etiology of congenital club-foot various theories have been advanced, such as maternal impressions, heredity, etc. Many authorities have observed that it is more common in marriages of kin than among others.

The theories which have been advocated to explain the deformity in uterine life, are as follows: 1st.—Abnormal compression in the uterine cavity; 2d.—Retraction or paralysis of muscles depending or not on lesion of the nervous system occurring in utero; 3d.—A malformation depending upon arrest of development of the foot.

These three theories are held by many of the very best authorities. Many hold to one of the three to the exclusion of the others. Probably the second theory, that it is due to retraction or paralysis of muscles depending on some nervous lesion occurring in utero, has the most advocates. It does seem to me that this is the most plausible theory, as there are so many cases associated with such affections as hydrocephalus, spina bifida, etc.

The third theory, that it is due to arrest of development, is well supported by the fact that feet are developed normally by the sixth

or seventh week with the feet turned inwards, and a permanence of this position would give rise to club-feet.

Club-foot is an affection that not only interferes with activity and usefulness, but is a source of great mental suffering. Lord Byron is an example of this, and Talleyrand is said to have entered the church on account of it. Dieffenbach states that of the women that he has treated he has come across only one that was married, indicating that it was an impediment to matrimony.

In regard to the prognosis of club-foot it may be safely said that the deformity does not correct itself, and if left untreated it will increase and become one of the most obstinate of deformities. A well marked case of talipes equino-varus in a new-born infant will remain practically the same until the child begins to walk; at this time as the weight is borne on the outer side of the foot the latter will continue to turn in until the deformity is so exaggerated that the child will walk on the dorsum of the foot.

On the other hand it may be said that the deformity is essentially curable, in fact it is always curable, if care and attention can be given by both the surgeon and the nurse until it is over-corrected and is kept in such a position until all danger of relapse is passed. The amount of time necessary will depend on the requirements of the case; no hard and fast rules can be laid down; each case must be treated on its own merits. It may be safely said that if the foot is somewhat over-corrected relapse is exceptional if care is used in the employment of an efficient retentive appliance until the child is three or four years old.

In speaking of the treatment of club-foot my remarks will be confined within the range of the title of my paper. i.e., to children under three years of age.

When asked as to the best time to treat a case of club-foot. my reply is, do it at once, regardless of age; do it at once, whether the child is one day old or a year old, for when the bones are soft and tendons and fascia and ligaments easily stretched, the desired object is easily attained. Dr. Phelps once said in a paper on this subject that the baby's club-foot should be corrected as soon as the third stage of labor was over and you were sure that there was no danger of post-partum hemorrhage. I will beg to repeat here what I said in a paper on this subject read before the Medical Society of Virginia some years ago; I would begin even a little earlier than Dr. Phelps if I were the accoucheur at the birth of a club-footed baby that was being born feet foremost, in such a case I would begin to manipulate the feet into position while waiting

for the body to be delivered, if there was no indication for a rapid delivery.

The treatment of club-foot must necessarily depend upon the age of the patient and the degree of the deformity. It should be by either manipulative, mechanical or operative measures. The object should be, as I have said above, to over-correct, as there is always a tendency to relapse. Then some mechanical appliance should be used to retain the foot in this over-corrected position sufficiently long to render any return of the deformity impossible. Bradford and Lovett say: "The treatment of club-foot requires:

1st.—A rectification of the misplaced bones and a lengthening of the shortened and contracted tissues.

2d.—A retention in a normal position until the abnormal facets of the astragalus and the other tissues become, under the pressure of the new position, normal."

The first of these can be done either gradually or quickly. The gradual method is by far the best and most lasting in small children, and the one I always use in children under three years old. I have yet to see a case of a deformed foot in a young child that cannot be corrected by gradual manipulation easily and with little or no pain. In infants it can be done absolutely painlessly.

It is very interesting to one who is interested along these lines to read of the early attempts to treat club-foot. Hippocrates recommended certain mechanical appliances for this purpose, but there is little reason to believe that any success followed the early attempts. Lord Byron abandoned all attempts at correcting the deformity after having been treated a long time by Sheldrake, we are told. After the introduction of tenotomy, such a great impetus was given to the treatment of club-foot that the mechanical treatment was sadly neglected, and as a result many partial cures resulted. If operative treatment is used, it is a great mistake to fail to follow it up with the proper mechanical treatment, for if the foot is not retained in its proper position for a long time, a partial cure will be the result and partial cures are no cures. No definite amount of time can be fixed for this mechanical treatment. It must be continued as long as there is danger of a relapse. Bradford and Lovett say: "At the present time there are few procedures in surgery so precise in their indications and as certain in their results as the methods for treating club-feet."

As it is the purpose of this paper to deal only with club-foot in very young children, the operative method will not be spoken of at all, as they can be best treated by gradual redressement. I am

sure if those who advocate the cutting operations could see a few of the perfect results that have been otherwise obtained, they would never again think of operating on such cases. Even in cases up to ten and twelve years of age I much prefer manipulation and gradual redressement whenever it is applicable. I am sure those who saw Lorenz operate recently in this city can well appreciate what can be done even in an extreme case.

My experience has taught me that each case is a law unto itself, and that the treatment must be guided by the age of the patient and the degree of the deformity to be corrected; I have yet to see a case of club-foot in a young child that can not be better done by non-operative measures. In slight cases, after this has been done the foot can be easily held in an over-corrected position by means of narrow strips of adhesive plaster applied spirally around the foot and leg. In severe cases I attempt to correct but little of the deformity at the first sitting, but gently manipulate the foot into a somewhat improved position, and then apply a plaster-of-Paris case and repeat the process at intervals of a few days, gaining something in the way of improvement each time. This process is continued until the foot is over-corrected; then the plaster can be safely left on for a month or more if the foot is properly protected with absorbent cotton under the plaster. The efforts to over-correct should be kept up until the equino-varus is converted into the opposite deformity, calcaneo-valgus. As a permanent retentive appliance I am very partial to one made of a silicate of soda bandage, for this is almost impervious to moisture, and will consequently last for months. I have frequently left it on for six months with most gratifying results. This makes a particularly fine dressing in children who can walk, thus utilizing the body weight of the child at each step to stretch the faulty tendons and ligaments and at the same time press the abnormally shaped tarsal bones into a normal position.

In infants nothing more is needed to correct club-feet than a succession of plaster bandages properly applied, but in children who have walked it is much more troublesome, requiring much more time and perseverance, for here the faulty structures are more resistant. In this class of cases I use what is known as the Wolff method of using plaster-of-Paris. I described this method in 1893 in a paper I had the honor to read before the Orthopedic Section of the New York Academy of Medicine, and illustrated the method by the presentation of four patients thus treated in the Hospital for Ruptured and Crippled, where I was House Surgeon

at the time. This method is so simple that any physician can use it after once seeing it done, hence I shall describe it in detail.

Wolff in severe cases in older patients uses an anesthetic at the first sitting and forces the foot into almost a correct position, and then applies the plaster. As I am dealing only with young children I shall not describe cases requiring an anesthetic.

The assistance of an ordinary child's nurse is all that is needed in applying the plaster. My rule is not to disturb the dressing for several days. By not hurting the child at first you gain its confidence, which is worth a great deal. It is much better for the same reason not to attempt to correct much of the deformity at the first two or three sittings. You will find that you are much more likely to cause pain at first than later on; you should regulate the amount of twisting all through the treatment by the amount of pain it gives.

The method of applying the plaster and the treatment is as follows: First apply a piece of cotton felt to both the outer and inner borders of the foot, extending it over the malleoli. This is done as an extra precaution for the protection of the bony prominences, being needed especially over the metacarpo-phalangeal joint of the great toe and over the cuboid bone—this being usually very prominent. Then apply at least two thicknesses of a canton flannel bandage to the foot and leg, extending it to the tuberosity of the tibia. Now, having the foot and leg well protected, the plaster is applied also up to the tuberosity of the tibia. This will prevent the leg from moving in the plaster case and give a better leverage when the twisting process is begun. Care should be had to have the toes held in their natural relation to each other; otherwise you will have an uneven pressure, and as a result, swelling and pain. The plaster should extend well over the toes, but their ends should be exposed. While waiting for the plaster to set, grasp the leg with one hand, holding it firmly on the table, and with the other press on the plantar surface with a piece of board; this serves the purpose of overcoming some of the deformity and gives a flat surface on which the child can walk better. When ready to begin the redressement cut out a wedge-shaped piece of plaster on the outer border of the foot over the most prominent part of the deformity for here the greatest pressure is needed, then connect the upper and lower angles of this cut by cutting a line through the plaster entirely around the foot. Of course, it is intended that these cuts should extend only through the plaster. Care should be taken not to allow this cut around the foot to be

near enough to the heel to allow the front part of the foot to move in the dressing when the foot is twisted, for then you would defeat the object in view.   The plaster cast is now in two pieces, each firmly fixed to the foot.   By grasping the leg with one hand and the end of the foot with the other, it takes but little force with this leverage to bring the opposite sides of the wedge-shaped incision into apposition, which corrects a certain amount of the deformity.   While an assistant holds the parts in their new relation one to the other, they are fixed there by a wet plaster bandage applied around the foot and ankle in a figure-of-eight, care being taken to fill in well the gap made by the linear incision on the inner side of the foot.   This third bandage being applied over a dry plaster cast can be easily peeled off at the next sitting; then make the wedge-shaped incision larger, and repeat the redressement as before.   This can be repeated three or four times, when it will become necessary to apply an entirely new dressing.   Great care should be taken lest you get compressed between the edges of the plaster when forced together, a fold of loose skin, which would likely cause a bad ulcer.   This was learned by experience for in one of my cases I had a bad ulcer that necessitated suspending the treatment until it was cured.

The number of sittings will have to be regulated by circumstances, pain, etc.   The twisting should be done about three times a week until the foot is in a normal position, and then once a week until the desired amount of over-correction is obtained; then the permanent dressing is applied.   The condition of varus should be first corrected, and then the equinus should be overcome by making the wedge-shaped incision on the dorsum of the foot, and proceeding as before.

As a rule it might be said that the foot should be kept in a permanent dressing for at least six months after the child begins to walk.   After the dressing is left off a close watch should be kept on the patient, and just as soon as it is discovered that there is a tendency to relapse, the foot should be at once put up in plaster again, or in whatever retentive apparatus you may select; for my part I prefer the plaster-of-Paris or silicate of soda to anything I have ever seen used.   No steel brace can compare with it.

The treatment of club-foot after this method requires a great deal of patience, perseverance and labor, but when one can get such perfect results in so short a time, and without the risk of an operation, it is surely worth the effort.   This method of treatment requires the hearty co-operation of all parties during the entire

course; and the surgeon must be the master of the situation and must insist that every detail be carried out minutely until he is assured that there is no danger of relapse. It is the duty of the surgeon to impress upon the parents the importance of the long continuation of the treatment, and that a relapse in a growing child is a likely event, and to obtain the best results the child must be brought back for examination from time to time, that he may detect any tendency to relapse at once. The surgeon can not be too particular in protecting himself in these cases, otherwise he will surely be blamed for relapses that are really due to the negligence of the parents. It is a very common story for me to hear that Dr. So and So operated on my child, and he is no better than he was first. Make the parents divide the responsibility with you by impressing on them that they have a very important part to perform.

THE ACTION OF THE UTERUS DURING LABOR.

BY

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The uterus exerts two kinds of action; first, that action which tends to reduce this organ to its original size after it has been distended and the distending cause has been removed. It is termed by writers the tonic action of the uterus. This action is performed by all the fibers of this organ gathering themselves up towards a common center; but more especially by that class of fibers called the "circular fibers;" the other, or longitudinal fibers, not acting with as great force, hence the lengthened form of the uterus.

The tonic action of the uterus can be exerted in various degrees, as it may possess its inherent powers in a greater or lesser state of perfection; it may exist under the following conditions and varieties: 1st. It may act with the most perfect uniformity and success for the purposes for which it is intended. 2d. It may be impaired so as to act transitorily and feebly. 3d. It may act with force at one moment, and cease the next. 4th. It may act partially; that is, the fundus may contract, and the body and neck be flaccid; the body may contract, and fundus and neck be relaxed; the neck

may contract, and the body and fundus be in a state of atony ; the
body and fundus may contract, and the mouth be relaxed : when
these occur, different phenomena present themselves.   Writers
have admitted the tonic power of the uterus to continue even after
visible life had ceased ; and however much this circumstance may
excite our suprise, or challenge our disbelief, it is nevertheless
authenticated by various testimony.   The following case illus-
trates this point.   In November, 1899, I was summoned by a mid-
wife to see Mrs. B.   On my arrival at the house I was informed
that the patient had died five minutes before.   After a hurried
examination, finding the head of the child almost born I applied
the short forceps with the idea that I might be able to save the life
of the child, and without any difficulty delivered her of a dead
fetus.   To my surprise I perceived the uterus contract in pro-
portion as the child was withdrawn, as if the woman were living.
I introduced my hand into the uterus to convince myself of this
fact.   I found it contracting to such a degree that the mouth of the
uterus opposed the introduction of the hand.   Doubting the
woman to be dead I employed the most active means for her re-
covery, but without success.

The uterus possesses the power of alternate contraction and
relaxation ; this action manifests itself only when the organ
is attempting to expel something from its cavity.   This it
can never do unless the tonic contraction is more or less perfect.
It never does take place, therefore, so long as the uterus is in a
state of atony.   This contraction has also been termed the spas-
modic, or painful contraction of the uterus ; as it is, for the most
part, accompanied by pain.   It is always the result of stimulation,
or mechanical irritation ; hence it appears during labor, abortion,
or in the form of after-pains, to expel coagula or other foreign
substances.   It must not be supposed that the "labor pains" which
declare themselves at the end of nine months in cases of extra-
uterine conception form an exception to this rule, for in these
cases the decidua is always produced : but at this period it becomes
a foreign substance and uterine contractions are established to
expel it.   This contraction is almost always attended by pain, but
not necessarily ; when pain attends it is not because it is an inevi-
table consequence of this contraction, but by reason of something
which the muscular fiber has undergone from civilization, re-
finement, or disease.   We sometimes see most efficient contraction
without pain, as in the labors of the aboriginal women of this
country, and among some even in our artificial state of society.   It

tends during its best action to diminish the cavity of the uterus, and consequently to expel its contents; but its effects are but transitory; the uterus returns to the condition it was in before this contraction took place, and remains quiescent until it is again called into action by its proper stimulus, thus alternating for a longer or shorter period. The contraction now constitutes what is usually called "labor pains." It is most successfully exerted when all the fibers composing the body and fundus of the uterus act simultaneously, for when it acts partially it is more painful than when the action is general, and never achieves the object it is intended to effect.

In the brute this contraction is successfully exerted without the intervention of pain, unless the labor be complicated with disease or accident. When either of these occurs the same consequences follow, namely, pain. It would be wrong, therefore, to suppose that the labor of the female brute is performed upon a different principle from that of the human female, merely because she is for the most part exempt from pain, for truly, the same general process occurs in both; and in each the uterus exerts the same kind of action. The only difference is, the one is performed with pain and the other without. It has been supposed by some, from the mere absence of pain in the brute, that the fetus is expelled by one uniform, but sufficiently long-continued effort, without alternate contraction and relaxation; but this is not so; as any one may at once convince himself by observing the progress of a labor in almost any of our domestic animals. It will be distinctly and easily perceived that there is from time to time a suspension of uterine effort, and a repetition of it, marking most conspicuously the periodical contraction. In brutes the periodical contraction is attended with pain, when the uterus is provoked by accident or disease to severer exertion than usual, and when this happens their sufferings are as great as those of the human female. From this it would appear that such a condition of fiber may be accidentally induced in them as is quite permanently fixed in the other. The periodical contraction would appear to be nothing more than a sudden and exalted degree of the tonic; and the pain which so usually attends this action arises from some morbid or altered condition of the muscular fibers composing the uterus. This would seem to be proved by the effects which have followed civilization and refinement, and the consequences of domestication may be traced in those animals which participate with man in his departure from his original simplicity; for we are informed that the

artificial condition to which the cow especially is reduced for domestic convenience in and near great cities subjects her to more difficult and dangerous labors than those in the natural or less artificial state.

So far as we can determine it seems that the longitudinal fibers of the body in general, and those of the uterus in particular have more especially felt the influence of civilization, for man is said to have lost much of his original vigor and strength, and women suffer from child-bearing; while the circular muscles and sphincters appear to have lost nothing of their primitive power. Thus the heart and intestines have parted perhaps with none of the original vigor with which from the beginning of the world they were endowed; nor have the several sphincters, among which the orifice of the uterus may be justly reckoned, suffered from constitutional abuses. In the uterus in particular we may observe very nearly the same thing, for I hold it more than probable that the circular fibers of this organ have not deteriorated in the same degree as the longitudinal, nor are they subject precisely to the same penalty, since they may contract with great force without the production of pain. We see this well and satisfactorily illustrated in that condition of the body of the uterus called the hour-glass contraction. This state may continue for hours without being attended by pain.

The contractions of this organ are entirely independent of the will; their intervals can neither be shortened nor increased by any exertion of it, nor can their force be either augmented or diminished by its influences; but passions and emotions of the mind, when strong, oftentimes exert a powerful influence over uterine action: they may call it into play at a time the least expected, or may suspend it after it has been strongly excited. The first is proved by passions and emotions being often followed by abortion; and the latter by the following case, which fell under my notice. In 1897 I was called to attend a Mrs. C. As I approached the house I was most earnestly solicited to hasten as not a moment was to be lost. I was suddenly shown to Mrs. C's chamber and my appearance there was explained by stating that her physician was taken suddenly ill. As I entered the room she was just recovering from a severe pain, and it was the last she had at that time. She became hysterical, being much affected by the news of the illness of her much-thought-of family physician. After waiting an hour in the expectation of the return of labor, I took

my leave, and was not again summoned to her for nearly two weeks.

Some writers upon midwifery consider the dilatation of the os uteri the effect of mechanical impulse, though many of them, at the same time, are forced to acknowledge they have seen it dilate where neither the distended membranes nor any portion of the child had entered its circle to effect its opening by a wedge-like action. That the waters distending the membranes and the child itself when powerfully impelled by uterine contraction, may occasionally have an influence on this operation, I am not disposed to deny; but if this take place it does not open this part either so kindly or so effectually as when this is achieved by the powers intended for the purpose. Before I offer a different explanation of this phenomenon, it will be necessary to consider the different kinds of contractions performed by the uterus. I have classified them as follows :

   a. The contraction of the longitudinal fibers of this organ.

   b. The contraction of the circular fibers.

   c. The simple contraction.

   d. The compound contraction.

   e. The tonic contraction and its effects.

   f. The spasmodic, or alternate contraction, and its effects.

The Contraction of the Longitudinal Fibers.—By the longitudinal fibers of the uterus, I wish to signify those fibers upon the contraction of which the uterus is shortened from fundus to mouth, and which will be in proportion to the effort. The effect of this contraction is to make the contents of the uterus approach its mouth. As this, from its organization, must necessarily be the least resisting part this tendency will constantly be in proportion to the diminution of resistance and the force with which these fibers act. The duration of labor will therefore almost invariably depend upon the resistance of the circular fibers of the mouth of the uterus, all things being equal. It is evident to every experienced accoucheur that the circular fibers constituting the mouth of the uterus have different degrees of disposition to relax, when acted upon by the contracting body and fundus ; in some instances the long-continued efforts of the body and fundus are required before they yield ; while in others contraction scarcely takes place before they give way and permit the presenting part to pass freely, nay, sometimes rapidly. It will be readily perceived that if the uterus be diminished in length it would necessarily be increased in breadth, unless opposed by the circular fibers ; or, in other words,

the circular fibers would be put upon the stretch until the dimin-
ished length were compensated, did they not resist this violence
by being stimulated to contraction by the shortening of the uterus
from fundus to mouth by contraction of the longitudinal fibers.
But being thus excited to action, the two sets of fibers urge the
contents of the uterus towards the least resisting part of itself,
namely, the mouth; by which means the membranes become dis-
tended and lengthened in the direction of the longitudinal axis of
this viscus nearly as much as this set of fibers shorten them-
selves. The action of the longitudinal fibers is at right angles to
that of the circular, and has a constant tendency to oppose or
overcome the disposition of the circular fibers to narrow the
uterus in its transverse direction.

   The Contraction of the Circular Fibers.—By the circular fibers
I mean those which are arranged transversely from the mouth to
the fundus and which, by contracting, diminish the capacity of the
uterus in the direction of the transverse diameter. Should they
act alone and the os uteri be closed, they would necessarily force
the uterus to stretch in the direction of its vertical or longitudinal
diameter. These fibers have, as I shall attempt to prove presently,
but an indirect agency in furthering the expulsion of the uterine
contents; the action of the circular fibers, especially at the neck
of the uterus, is almost in direct opposition to the longitudinal,
and serves rather to retain than to expel the contents of the uterus.
It is by the successful and uniform contraction of these fibers and
especially those of the neck that the woman is enabled to carry the
product of conception to the full period of utero-gestation. They
may act independently of the longitudinal fibers; or they may act
with greater force.

   The Simple Contraction.—When either the longitudinal or cir-
cular fibers act alone "the simple contraction" takes place. It may
be asked what evidence have we that one set of fibers may act in-
dependently of the other? I answer, we have abundant proof of
this in the contractions which take place towards the latter period
of gestation, and of which we are made sensible by passing the
finger within the os and placing its extremity against the mem-
branes. An alternately tense and relaxed condition of the mem-
branes is perceived; this is owing to the longitudinal fibers acting
alone, for did the circular act at the same time this would be felt
by the finger as a stiffening or rigidity of the edges of the os uteri;
but this is not the case. On the other hand, we prove that the
circular fibers may contract firmly and for a long time without the

slightest co-operation of the longitudinal fibers, by the well known circumstance that when the waters have been discharged for some time the uterus is found to embrace the body of the child firmly; in this case it is evident that the circular fibers contract alone, as there is no effort to expel the child, as would be the case did the longitudinal fibers exert an influence at the same time.

The Compound Contraction.—This contraction is the effect of both sets of fibers acting simultaneously. This is proved by the mouth of the uterus attempting to close itself during the period of action, and by the head or other presenting part evidently sinking lower in the pelvis, though perhaps to rise again immediately. Now, these two circumstances could not happen at one and the same time did not both sets of fibers contract together; it is this compound action which attends the commencement of all healthy or regular labors.

The Tonic Contraction and its Effects.—The tonic contraction, or that contraction which tends to diminish the uterus in all directions, cannot be called into action to any extent until the uterus is either in part or altogether deprived of its contents. Whatever will weaken the force of the uterus or diminish the quantity of its contents, will permit, in that proportion, the tonic contraction of the uterus to take place if this organ be in a healthy condition. Even a less quantity of blood in its parietes, a very partial dilatation of the os uteri, or the escape of a very small quantity of the liquor amnii will do this. But if this tonic contraction happen even in a small degree the whole of the fibers of which the uterus is composed begin to shorten, or fold themselves up, and thus make the uterus accommodate itself to the quantity, and almost the shape of its contents. In consequence of this the direction and perhaps the size of the blood-vessels of this organ are changed; and though in no very sensible degree at first or when its contents are but little diminished, yet it will be found that the changes will bear an exact proportion to the amount of evacuation from the uterus. It is this contraction which preserves the woman from a fatal hemorrhage when the placenta is either partially, or altogether detached; it serves also the important purpose of keeping the uterus in constant contact with its contents, and enables its fibers to act with more efficiency upon the body to be expelled; it is also this contraction which opposes the redistention of the uterus; and so obstinately does it do this sometimes as to render turning impracticable.

The Spasmodic or Alternate Contraction and its Effects.—This

contraction is often called the spasmodic contraction; but I prefer the term alternate or periodical contraction, for it is not necessarily accompanied with pain.

The cause of these contractions, like the contractions of every other muscle, must be a stimulus of some kind or other. I declare my ignorance of what first excites the uterus to contraction at the end of nine months, though we are very often enabled to detect it before that period. It is always found that whatever can stimulate this organ to a certain degree is capable of provoking its action, and if not interrupted by proper counter-agents, this action goes on until the contents of the uterus are expelled. So much for the causes which may excite the uterus to action; but what is it that gives these contractions their alternate or periodical form? Writers have given different theories: therefore if I fail to be satisfactory in the one about to be offered, it must be remembered I only hazard an opinion; and it will but share the fate of the thousands upon every subject from the time of Hippocrates to the present moment.

In order that a muscle may renew its contraction it must by some antagonizing power be elongated after it has become relaxed. In almost every part of the body this power is at once discoverable; but where, and in what resides that which enables the uterus to repeat its efforts? I am of opinion that this power depends upon its own structure and economy. I shall now attempt to prove this. The uterus by impregnation becomes of course distended in proportion as that process advances. It is therefore elongated, or its fibers put to a certain extent upon the stretch, and is thus enabled to contract so soon as the appropriate stimulus is applied. What is the effect of this contraction? An approximation of the uterine fibers; a compression of all its blood-vessels, with the immediate discharge of a large portion of blood from them into the general system: in consequence of this the uterus becomes paler and the vessels empty, or nearly so. The blood escapes by means of this contraction; and to facilitate its departure the anastomoses between the arteries and veins are unusually frequent. What is the effect of the subsequent relaxation? The fibers of the uterus become longer, straighter, and more easily distensible; the large vessels and sinuses are less compressed, and consequently will now permit the natural resiliency of their coats to act. The influent blood will suddenly fill them, and thus restore the equilibrium which the previous contraction has destroyed. This rapid influx will not only distend the empty vessels, but will

also prove a powerful stimulus to the uterine fibers and thus urge
them to renew their contraction. This will be repeated from time
to time, until there be no further necessity for its continuance.
This plethoric state of the uterus, if we may so term it, is proved
by the heightened color of its parietes.

I presume, when this contraction is best performed it is chiefly
by the exertion of the longitudinal fibers. This opinion is founded
upon the relative strength of the two sets of fibers. I believe that
the longitudinal fibers which by contracting shorten the uterus,
are the stronger of the two; and for the following reasons: (1)
Because, if they were of equal strength delivery could not take
place, as the circular fibers by their contractions would rather
embrace and retain the child than advance it, since they tend to
diminish the transverse diameter of the uterus; and consequently,
their action is, as I have already said, at right angles with the
action of the longitudinal fibers. (2) When either the ab-
solute or relative strength of the circular fibers is increased by
any cause whatever, labor does not advance, therefore the circular
fibers do not directly contribute to the expulsion of the child.
(3) As the circular fibers do not from the very nature of their
action contribute to the immediate propulsion of the child, as just
declared, they must be considered inferior in power to the longitu-
dinal fibers; since the child is expelled without their direct action.
Therefore, the latter set of fibers has not only to move the child,
but to overcome the resistance the former give by the direction
of their action. We see this finely exemplified in those cases where
the waters have been discharged early and the uterus closely em-
braces the child, and where, by virtue of its tonic contraction, it
even accommodates itself to the inequalities presented by the
child's body. In such instances labor would be stationary did not
the longitudinal fibers possess greater power than the circular.

With these facts before us I shall attempt the explanation of
the dilatation of the os uteri. At the full period of utero-gestation
the process called labor must take place, that the womb may expel
its contents. To this important end its body and fundus must con-
tract while its neck must dilate. The question now is, how is the
latter effected? During the whole period of gestation the lower
part of the womb is kept closed by the contraction of the circular
fibers. This condition must now be overcome by the exertions
of the longitudinal; therefore these two sets of fibers may without
a strained comparison be considered as antagonizing powers. Dur-
ing gestation, at least until the seventh month, the longitudinal

fibers yield much more willingly than the circular to the distend-
ing force of the enlarging ovum. This may be owing to their
greater length or their greater laxity; and hence, perhaps. the
lengthened form of the uterus. This stretching must have a
limit or maximum and when this is reached they will necessarily be
stimulated to contraction. This really takes place at this period,
as I have several times declared, and attempted to prove. The
effect of this effort, which is almost constantly repeated after it is
once commenced, is felt until now by the passive neck of the uter-
us, and obliges it to support not only the action of the body and
fundus, but also the weight of the child and waters. These joint
powers make it unfold itself and become identified with the other
portions of the uterus ; so that, at full term, it forms a portion of
that globe which is placed in the cavity of the pelvis, and its dis-
tinctive mark or projection is lost in the uniform surface pre-
sented to the finger.

From the moment the neck begins to be acted upon, it begins to
lose in thickness and in length. These changes commence at that
part next to the body of the uterus, so that the extremity of the
neck is the last portion which is effaced. When the longitudinal
fibers act, the circular become a little stretched in consequence of
the uterus being shortened : and I have already said that the
uterus cannot diminish in one direction while the membranes are
entire, without increasing in another. This must be the case so
long as the mouth of the uterus remains shut ; but it cannot be very
long as the latter must sustain the whole pressure of the contents
of the body and fundus, and this in proportion to the power with
which the longitudinal fibers may contract, as well as the force
exerted by a part of the circular fibers which are now called into
action by the contraction of the longitudinal distending them until
they themselves contract from this very stimulus. This action and
re-action is reciprocated for some time, the longitudinal fibers
shortening the uterus from fundus to mouth, while the circular
attempt to resist the effect of their action by contracting them-
selves, and thereby opposing the tendency to distention in the
transverse direction of this body. The effect of this compound
action is to direct the body to be moved towards that part which
offers it the least resistance, and this is the small opening, the os
uteri. The fibers which immediately surround this opening and
oppose its immediate dilatation gradually become weakened by the
superior strength and persevering action of the longitudinal fibers,
and after a struggle of more or less severity and duration, they are

obliged to yield. In their quiescence the dilatation of the os uteri consists.

In the whole of this arrangement we see no necessity for the mechanical wedge-like agency of the membranes acting on the circle of the os uteri, which authors speak of as important to its dilatation, for every day's experience proves that the most perfect and speedy relaxation of the mouth of the uterus takes place without any such influence. Indeed they seem to yield this point when they confess that "in many cases the membranes break spontaneously long before this period, (that of the os uteri being wholly dilated) without any material inconvenience."

It may be asked why those labors in which the membranes give way early are more tedious and painful than those in which they are preserved. I would answer that this is not by any means always the case; and that when the membranes have yielded from their delicacy before the genuine expulsive action has commenced the uterus may be said to be surprised, if I may use the expression, into contraction before the natural stimulus is given. In consequence of this the uterus is made to embrace the child closely by virtue of its tonic power, and is sometimes thrown into irregular and painful contractions by the unequal surface which the child's body presents to its internal surface, for the evacuation of the waters prevents the lower part of the uterus from being fully stretched by the contractions of the body and fundus, and by this means retards the weakening of the circular fibers at this part, a circumstance of considerable moment to the dilatation of the os uteri. If an unusual degree of pain be excited by the premature escape of the waters it is not because the membranes and waters fail in their wedge-like agency to dilate it ; but because the uterus is prematurely excited into action before all the terms of pregnancy have been compiled with, as the waters, while retained, serve to insure symmetrical distention of that part of the uterus which we might call in the unimpregnated state its· neck and which is the part to relax during labor that the child may escape from the general cavity of this organ.

I have abundant confirmation that this is the true explanation; for if the waters have not prematurely passed off, or, in other words, if at the time of their escape the uterus is prepared for the regular routine of labor, the mere circumstance of their evacuation will neither materially retard the dilatation of the os uteri, nor necessarily create any unusual delay to delivery.

I may therefore, I believe, safely lay it down as a general rule

that the early spontaneous rupture of the membranes does not
necessarily produce a more painful or tedious labor unless the
uterus is from this cause immediately excited to contraction; for
should pain not follow very soon, or should the legitimate pains
of labor have preceded this accident the labor will, all things being
equal, be as in ordinary cases. I have many times seen patients
with whom the first intimation of labor being at hand was a dis-
charge of liquor amnii, and this not instantly followed by pain;
but when pain did come on the labor was speedily finished. In
these instances the mouth of the uterus opened as speedily and as
extensively as though the membranes had not given way and the
waters had not discharged themselves.

Let any one who has made the attempt to penetrate the os uteri
when rigid be asked if a direct action on its edges by the hand
formed in a wedge-like shape and the application of a force of no
mean power will always be sufficient to overcome the opposition
of the circular fibers of the neck. He will answer if he be candid,
No; and will add that the part would suffer laceration rather
than yield to the force employed. Is it reasonable, then, to expect
that a wedge formed by the smooth and comparatively delicate
membranes with the liquor amnii within them, will, as a mere me-
chanical power, however aided by a strongly contracting body and
fundus, achieve more than the well-directed force of the hand as
just stated? Besides, every accoucheur knows that in many in-
stances of the most speedy and perfect dilatation of the os uteri,
the membranes are too feeble to bear the slightest force. The
mere touch of the finger will sometimes rupture them; and this
at the moment the os uteri is yielding rapidly. Now, in such
cases the dilatation of the os uteri should cease as soon as the
membranes had yielded, if their presence were mechanically neces-
sary to this end; especially if a portion of the child have not en-
gaged in the mouth of the uterus to supply the place of the dis-
tended membranes. Let any one familiar with the general manner
in which the distended membranes offer themselves at the orifice
of the uterus during pain be asked if their presence and agency
at such a moment presents to his mind the idea of a mechanical
power attempting to overcome a resistance offered by the con-
traction of the circular fibers. I am sure he would unhesitatingly
say, No.

When the os uteri does dilate it is not by its edges being
stretched mechanically. It is because of an absolute inability of
the circular fibers to maintain a state of contraction. For the

time being they may be considered as paralyzed or excessively fatigued. Perhaps, more properly speaking, it is the relaxation of a sphincter not subject to the control of the will.

I admit that the os uteri is sometimes forced to open in a degree by the membranes or the presenting part engaging in its circle when these parts are strongly impelled by the contractions of the body and fundus; but when this happens the orifice does not present the same feel as when it dilates by the regular and natural process. It is easily perceived that it is reluctantly yielding to force and is not obeying a law.

When labor is most easily and naturally performed there appears to be a tacit understanding, if we may be allowed the expression, between the longitudinal and circular fibers; the latter relax suddenly, but so effectually that we cannot discover the agencies by which this is effected. Who has not witnessed the almost instantaneous opening of the os uteri, been sensible of the retraction of its edges over the child's head, and seen the delivery of the child follow almost at the same moment?

Some writers claim "that if a muscular part is suddenly extended, its contractile powers are brought into violent action; but let the part be extended gradually, as is of course the case where the extension depends upon the slowly increasing size of the ovum, and when it has arrived at its maximum of stretching its antagonistic powers appear to be destroyed, for contraction either does not take place at all or is very imperfect. It is well known that surgeons act upon this principle when they have to overcome the obstinate contraction of muscles; they exhaust the powers of the part by keeping up a gradual extension."

The claim just stated is ingenious but not valid; because there is no analogy between the inordinate stretching of a muscle not organized for this purpose and the expansion of the uterus, to which this capacity is most amply given. A period must arrive in the stretching, however gentle, of even the common muscles at which they would contract, and that violently, if permitted, from the stimulus which "extension" must offer. It is precisely so with the uterus; its organization is such as to support a great deal of distention before it is, like the other muscles, stimulated to contraction. The bladder is gradually distended by the percolating urine until its parietes are put upon an uneasy stretch; it then gives warning that it can no longer support this state with impunity, for the distention has arrived at its healthy "maximum,"

and must not be carried farther. Were the bladder or the uterus itself suddenly stretched to the extent of its capacity it would as certainly lose the power of contraction as the muscles over which the surgeon exerts his control.

1921 I STREET, N. W.

THE KIDNEY IN PREGNANCY.

BY

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THIS article is submitted as a contribution to the study of the above subject, and is based upon the examinations made of urine which was voided by eighty-five women at various periods of gestation. All but two of these women were delivered at term, and they went to seven and eight months respectively. They were all of American birth and of the white race.

The urine is taken from that first voided in the morning and is examined in a fresh state. It is sent to me each month, after the patient comes under my care, until the last month, when it is sent weekly or more often if necessary. It is examined by a trained assistant for specific gravity, reaction, albumin, sugar and microscopically. Dr. Allan Ramsey has done this work for me for several years.

His method is as follows: The specific gravity and reaction are tested in the ordinary way; the albumin is tested by heat and nitric acid. It may be remarked, in this connection, that Dr. Ramsey finds the albumin ring will sometimes appear if the urine and nitric acid are allowed to stand together for fifteen minutes, when it would not appear if the examination were made hurriedly. This procedure he has followed when the specific gravity was low or there was anything else which made albumin a possibility. Trommer's, and when necessary, the fermentation test for sugar was made. The urine was then put into the electrical centrifugal machine and the sediment thus obtained was examined under the microscope, one or more specimens being taken when necessary.

I have selected these eighty-five cases because the urine had been sent with considerable regularity, and, chiefly, because there had nearly always been two or more specimens sent during the last month of pregnancy. Four hundred and forty-two examina-

tions were made in all; nine in second month; seventeen in third month; twenty in fourth month; forty-three in fifth; forty-five in sixth; sixty-nine in seventh; seventy-one in eighth and one hundred and sixty-eight in the ninth. The urine of fifty-four women was examined during the last ten days of pregnancy. Thirty-eight of the women were primiparæ, twenty-one, secundiparæ, and twenty-six were multiparæ. Thirty-eight male and forty-seven female children were born. There was nothing in the reaction which calls for special comment. Sufficient details are given in history of cases in which albumin appeared in the urine.

During the first third of the ninth month of gestation, eleven specimens of non-albuminous urine were examined with special reference to the specific gravity; in the second third, nineteen, and in the last third, forty-one. These specimens were taken from as many different women. The average specific gravity was: First third of month, 1019; second, 1016; third, 1015; for the whole month 1015.8. Seven specimens of albuminous urine taken during the ninth month showed an average of 1025. Too much reliance cannot be placed upon these figures for the reason that the daily quantity of urine was not measured, but as the patients had been instructed to notice any marked increase or diminution in the quantity voided, it may be taken for granted that the quantity passed in twenty-four hours had not in any case varied much from the normal. Attention is called to the fact that there was throughout the three periods of the ninth month a decided fall in specific gravity when the urine showed no albumin, while during the same month albuminous urine showed a high specific gravity.

Sugar was found in but one case, at the end of the eighth month, but did not recur even in that case.

Albumin appeared in thirteen cases or in 15.3 per cent. of all the patients examined. Not a trace of it was found at any time in seventy-two cases or 84.7 per cent.

A detailed record of the thirteen cases follows:

CASE I. MRS. N. SECUNDIPARA.
Aug. 30, 1897, 1024; Acid; no albumin; no sugar.
Sept. 17, 1897, 1010; Acid; no albumin; no sugar.
Oct. 18, 1897, 1025; Acid; no albumin; no sugar.
Nov. 18, 1897; 1021; Acid; no albumin; no sugar.
Dec. 18, 1897, 1018; Acid; no albumin; no sugar.
Dec. 31, 1897, 1032; Acid; trace albumin; no sugar.
Jan. 3, 1898, 1030; Acid; no albumin; no sugar.
Jan. 10, 1898, 1028; Acid; no albumin; no sugar.
Delivered January 16, 1898, Female.

This patient was delivered of her first child about two years before. At that time her urine up to a week before delivery had shown no trace of albumin. Two days before confinement she complained of headache. She did not send the urine again although she was told to do so. Within forty-eight hours of the appearance of the headache she was seized with violent eclamptic convulsions, was delivered by accouchement forcé of a dead child. Urine drawn after convulsion showed much albumin, many granular casts and some red blood corpuscles. Nephritis continued for ten days and albuminuria for nearly three months and then patient recovered. The urine showed a trace of albumin in ninth month of second pregnancy, but without casts (See Case I). It quickly disappeared under treatment. Strangely enough there was again a trace in the third pregnancy, but only in the fourth month. (See Case VIII.)

CASE II. MRS. S. PRIMIPARA. LAST MENSTRUATION OCT. 22-24, 1897.
March 26, 1898, 1012; Acid; no albumin; no sugar.
April 23, 1898, 1012; Acid; no albumin; no sugar.
May 23, 1898, 1015; Acid; trace albumin; no sugar.
May 25, 1898, 1012; Acid; no albumin; no sugar.
June 9, 1898, 1028; Acid; no albumin; no sugar; ox. calc.; epithelium.
July 10, 1898, 1026; Acid; no a..umin; no sugar.
Delivered July 15, 1898, Male.

CASE III. MRS. W. MULTIPARA. LAST MENSTRUATION SEPT. 12-19, 1898.
March 1, 1899, ——; Acid; no albumin; no sugar; amorphous urates and uric acid crystals.
April 7, 1899, 1025; Acid; no albumin; no sugar; nothing microscopically.
April 24, 1899, 1024; Acid; trace albumin; no sugar; large number epithelial cells.
April 30, 1899, 1022; Acid; no albumin; no sugar; large number epithelial cells.
May 20, 1899, 1028; Acid; no albumin; no sugar; large number epithelial cells.
June 4, 1899, 1032; Acid; no albumin; no sugar; large number epithelial cells.
Color in this last examination dark amber. Quantity, 24 hrs., 130 c.c.
Delivered June 21, 1899, Male.

CASE IV. MRS. I. PRIMIPARA. LAST MENSTRUATION NOV. 22-29, 1898.
May 10, 1899, 1022; Acid; no albumin; no sugar; number epithelial cells, pus cells.
June 12, 1899, 1032; Neutral; no albumin; no sugar; number epithelial cells; pus cells.
July 30, 1899, 1030; Neutral; no albumin; no sugar; triple phosphates; ammonium urate crystals.

Aug. 8, 1899, 1030; Acid; trace albumin; no sugar; large number pus cells.

Aug. 12, 1899, 1026; Neutral; trace albumin; no sugar

Aug. 15, 1899, 1024; Neutral; no albumin; no sugar; triple phosphates; pus cells.

Aug. 19, 1899, 1018; Acid; no albumin; no sugar; epithelial and pus cells.

Aug. 25, 1899, 1024; Neutral; no albumin; no sugar.

Delivered September 6, 1899, Female.

Case V. Mrs. L. Multipara.

April 11, 1900, 1007; Acid; no albumin; no sugar; some epithelium.

June 2, 1900, 1006; Acid; no albumin; no sugar; some epithelium and leucocytes.

June 22, 1900, 1017; Acid; trace albumin; no sugar; many leucocytes, much epithelium.

June 30, 1900, 1018; Acid; no albumin; no sugar.

Delivered July 4, 1900, Male.

Case VI. Mrs. T. Multipara. Last Menstruation Jan. 28-Feb. 2, 1900.

April 14, 1900, ——; Acid; no albumin; no sugar; few epithelial cells.

July 24, 1900, ——; Alk.; no albumin; no sugar; few epithelial cells.

Aug. 14, 1900, 1007; Acid; trace albumin; no sugar; few epithelial cells.

Sept. 1, 1900, 1009; Acid; no albumin; no sugar; very few epithelial cells.

Sept. 14, 1900, 1004; Acid; no albumin; no sugar; very few epithelial cells.

Sept. 28, 1900, 1008; Acid; no albumin; no sugar; very few epithelial cells.

Oct. 24, 1900, 1007; Acid; no albumin; no sugar; very few epithelial cells.

Delivered November 2, 1900, Female.

Case VII. Mrs. M. Multipara. Last Menstruation Oct. 22, 1900.

April 6, 1901, 1025; Acid; no albumin; no sugar; pus and epithelium.

May 6, 1901, 1030; Alk.; no albumin; no sugar; epithelium.

June 17, 1901, 1032; Acid; no albumin; no sugar; pus and epithelium.

July 11, 1901, 1032; Acid; trace albumin; no sugar; leucocytes and epithelium.

July 13, 1901, 1029; Acid; trace albumin; no sugar; leucocytes and epithelium.

July 15, 1901, 1027; Acid; no albumin; no sugar; leucocytes and epithelium.

July 18, 1901, 1026; Acid; no albumin; no sugar; leucocytes and epithelium.

Delivered July 20, 1901, Female.

Case VIII. Mrs. N. Multipara.

Feb. 27, 1901, 1031; Acid; trace albumin; no sugar; pus and epithelium.

Feb. 28, 1901, 1032; Acid; no albumin; no sugar; epithelium.

April 20, 1901, 1040; Acid; no albumin; no sugar; epithelium and few leucocytes.

May 27, 1901. 1015; Acid; no albumin; no sugar; epithelium.

July 8, 1901, ——; Acid; no albumin; no sugar; epithelium, few leuco-cytes.

Delivered July 28. 1901, Male.

This case was referred to in notes on Case I. The patient has remained well until the present.

Case IX. Mrs. K. Primipara.

May 20, 1901, ——; Acid; no albumin; no sugar; epithelium.

June 20, 1901, 1022; Acid; no albumin; no sugar; epithelium; calc. ox-alate.

July 26, 1901, 1020; Acid; trace albumin; no sugar; one hyaline and one hyalo-granular cast; few leucocytes.

July 29, 1901, 1031; Acid; faint trace albumin; no sugar; one granular cast; few leucocytes; epithelium.

July 31, 1901, 1022; Acid; no albumin; no sugar; one hyaline cast; leu-cocytes; epithelium.

Aug. 2, 1901, 1008; Acid; no albumin; no sugar; epithelium.

Aug. 13. 1901, 1015; Acid; no albumin; no sugar; epithelium.

Aug. 24, 1901, 1024; Acid; no albumin; no sugar; epithelium.

Sept. 2, 1901, 1018; Acid; no albumin; no sugar; epithelium.

Sept. 5, 1901, 1027; Acid; no albumin; no sugar; epithelium.

Edema of extremities and face appeared with albumin but yielded to treatment.

Delivered September 5, 1901, Female.

Case X. Mrs. H. Primipara.

Feb. 7, 1901, ——; Acid; no albumin; no sugar.

March 11, 1901, 1025; Acid; no albumin; no sugar; few leucocytes, epi-thelium.

April 16. 1901, 1026; Acid; no albumin; no sugar; few leucocytes; epi-thelium.

May 20, 1901, 1020; Acid; no albumin; no sugar; few leucocytes; epi-thelium.

June 19, 1901, 1004; Acid; no albumin; no sugar; few leucocytes; epi-thelium.

July 3, 1901, 1022; Acid; faint trace albumin; no sugar; few leucocytes.

July 6, 1901, 1020; Acid; faint trace albumin; no sugar.

July 9, 1901, 1023; Acid; no albumin; no sugar.

July 17, 1901, ——; Acid; faint trace albumin; no sugar; few leucocytes.

July 30, 1901, 1022; Acid; no albumin; no sugar.

Aug. 14, 1901, 1018; Acid; no albumin; no sugar.

Sept. 25, 1901, 1030; Acid; no albumin; no sugar.

Delivered October 2, 1901, Female.

Case XI. Mrs. F. Primipara.

Oct. 8, 1901, 1022; Acid; no albumin; no sugar; little epithelium.

Nov. 8, 1901, 1020; Acid; no albumin; no sugar; little epithelium.

Dec. 10, 1901, 1013; Acid; no albumin; no sugar; little epithelium.
Jan. 9, 1902, 1016; Acid; no albumin; no sugar; little epithelium.
Feb. 11, 1902, 1022; Acid; no albumin; no sugar; little epithelium.
Feb. 26, 1902, 1022; Acid; trace albumin; no sugar; little epithelium; few leucocytes.
Feb. 28, 1901, 1013; Acid; trace albumin; no sugar; little epithelium, albumin diminished.
March 3, 1902, 1014; Acid; trace albumin; no sugar; little epithelium, albumin increased.
March 5, 1902, 1007; Acid; trace albumin; no sugar; little epithelium, albumin less.
March 7, 1902, 1012; Acid; trace albumin; no sugar; little epithelium.
March 10, 1902, 1016; Acid; trace albumin; no sugar; little epithelium.
March 13, 1902, 1015; Acid; trace albumin; no sugar; little epithelium.
March 15, 1902, 1012; Acid; trace albumin; no sugar; little epithelium.
March 18, 1902, 1011; Acid; trace albumin; no sugar; little epithelium.
Delivered March 20, 1902, Female.

Patient is now (June 1, 1903) eight and a half months advanced in her second pregnancy, and the urine has as yet shown no albumin. The record is as follows:

Feb. 9, 1903, 1020; Acid; no albumin; no sugar; epithelium.
April 1, 1903, 1015; Acid; no albumin; no sugar; epithelium.
Nothing May 1st or June 1st.
Due June 14, 1903.

CASE XII. MRS. H. PRIMIPARA. IN NINTH MONTH.

This patient had been spending the summer at a Northern resort where the climatic and hygienic surroundings were of the best kind. Nothing had been noticed until perhaps a week before August 11th, the date on which I first saw her. At the time mentioned there was some headache or other symptoms which induced the physician to examine her urine. He found albumin in moderate quantity. The quantity of urine was diminished and Dr. Rachford brought her to Cincinnati.

When I saw the patient she was anemic, very nervous, but there was no edema. Urine examined same date:

Aug. 11, 1902, 1016; Acid; considerable albumin; no sugar; no casts; no blood; few leucocytes; epithelium.

I waited until the day after my first visit before interfering because there were no casts nor blood cells. Coming as she did within the history of albumin suddenly appearing, I felt that other treatment should be thoroughly tried before resort was had to extreme measures.

Aug. 12, 1902. 1022; Alk.; albumin greatly increased; no sugar; two hyalo-granular casts; occasional red blood corpuscles; leucocytes; quantity, 24 hours, 12 oz.

The appearance of the casts, the increase in the albumin and the marked diminution in quantity of urine warranted interference. The red cells and a slight edema which had now appeared made this procedure imperative. Accordingly the patient was anesthetized, the cervix fully dilated and the high (axis-traction) forceps applied. A living female child was delivered. Some laceration of the perineum; immediate repair. I add the record of examinations made subsequent to the delivery:

Aug. 13, 1902, 1003; Acid; trace albumin; no sugar; loaded with casts; hyaline, granular and epithelial; no red blood corpuscles.

Aug. 14, 1902, 1006; Acid; small amount albumin; no sugar; casts diminished but still numerous.

Aug. 15, 1902, 1013; Acid; trace albumin; no sugar; two casts; leucocytes.

Aug. 16, 1902, 1014; Acid; trace albumin; no sugar; casts scarce; little pus.

Aug. 18, 1902, 1017; Acid; trace albumin; no sugar; no casts; pus.

In a few days urine became normal, but patient was very anemic. Child was nursed by mother. Complete recovery according to Dr. Rachford's report.

CASE XIII. MRS. L. PRIMIPARA.

Oct. 22, 1901, 1022; Acid; no albumin; no sugar; little pus; epithelium.

Nov. 12, 1901, 1029; Acid; no albumin; no sugar; epithelium.

Dec. 10, 1901, 1027; Acid; no albumin; no sugar; epithelium; many leucocytes.

Dec. 17, 1901, 1024; Acid; trace albumin; no sugar; epithelium; cloudy from pus.

Dec. 19, 1901, 1017; Acid; trace albumin; no sugar; epithelium; cloudy from pus.

Dec. 21, 1901. ——; Acid; trace albumin; no sugar; epithelium; few leucocytes.

Dec. 23, 1901, 1022; Acid; trace albumin; no sugar; epithelium; cloudy from pus.

Dec. 26, 1901, 1016; Acid; no albumin; no sugar; epithelium; few leucocytes.

Delivered, December 30, 1901, Male. (Still-born.)

This patient recovered entirely and again became pregnant in April, 1902. She was delivered of a living female child January 21, 1903. High forceps because of failure of head to descend after becoming barely engaged at brim.

The record of examination during this second pregnancy is as follows:

Oct. 24, 1902, 1024; Acid; no albumin; no sugar; epithelium.
Nov. 17, 1902, 1020; Acid; no albumin; no sugar; epithelium.
Dec. 29, 1902, 1023; Acid; no albumin; no sugar; epithelium; pus.
Jan. 7, 1903, 1035; Acid; no albumin; no sugar; epithelium; calc. oxal.
Jan. 14, 1903, 1017; Acid; no albumin; no sugar; epithelium; few leucocytes.

A few details of these thirteen cases in which albumin was found are given for the sake of clearness. Seven of the women were primiparæ, one secundipara and five multiparæ. Of the children, six were males and seven females.

The albumin first appeared in fourth month, once; sixth, once; seventh, three times; eighth, once; ninth, seven times. In Cases I., II., III., IV., V., VI., VII., VIII. and X. it appeared only as a trace and disappeared in a day or two. In Case XI. it persisted as a trace for twenty days, or until time of delivery. In Case XIII. it persisted as a trace for nearly ten days, disappearing four days before delivery. In Case IX. the addition of casts and leucocytes showed the danger of nephritis, although all disappeared in a week.

The reaction was acid in all of the thirteen cases.

The specific gravity was remarkably high in most of these cases, as the following resumé will show:

Fourth month 1031   Ninth month 1032
Sixth month 1022   Ninth month 1030
Seventh month 1015   Ninth month 1017
Seventh month 1024   Ninth month 1022
Seventh month 1007   Ninth month 1022
Eighth month 1020   Ninth month 1016
                    Ninth month 1024

The following table shows the frequency with which the microscopical constituents of the urine were noted in the various months of pregnancy:

	2d	3d	4th	5th	6th	7th	8th	9th
Epithelium	7	14	16	29	32	44	46	67
Calcium oxalate					1	7	6	4
Leucocytes	2	2	2	2	5	4	8	23
Uric acid			1	3	1		1	2
Pus			1	3	2	4	4	10
Triple phosphate		1	1	3		1	4	4
Urates		1		1		5	3	5
Red corpuscles	1							1
Casts							1	1

It would seem from this table that the epithelium, the leucocytes and the pus all increased in frequency as pregnancy advanced; that the same is true, but to a less degree of the triple phosphates and the urates; that the red blood corpuscles showed once in second and once in ninth month, and that casts were found in eighth and ninth months.

A computation of percentages in the above-mentioned increase in epithelium, leucocytes and pus shows that the increase was apparent rather than real—depended upon the relatively greater number of examinations as the pregnancy advanced. These percentages are found by dividing the number of times a constituent was found by the number of examinations made.

Epithelium :—Second month, 7.7 per cent.; third, 8.2 per cent.; fourth, 8 per cent.; fifth. 6.7 per cent.; sixth, 7.1 per cent.; seventh, 6.4 per cent.; eighth, 6.5 per cent.; ninth, 4 per cent.

Leucocytes :—Second month, .22 per cent.; third, .12 per cent.; fourth, .10 per cent.; fifth, .05 per cent.; sixth month, .11 per cent.; seventh, .06 per cent.; eighth, .11 per cent.; ninth, .13 per cent.

It will be noted that these percentages (leucocytes) are all less than 1 per cent.

Pus :—Fifth month, .07 per cent.; seventh and eighth, .057 per cent.; ninth, .06 per cent.

Again less than 1 per cent.

The time of year at which the albuminuria occurred may be of interest in connection with the etiology: February, twice; April, once; May, once; June, once; July, three times; August, three; December, twice. I submit this without further comment than that seven of the thirteen cases occurred in the hot, and six in cold weather.

With these facts as a basis, the question arises, how far do they go towards establishing the theory that pregnancy causes such changes as to warrant the term : "Kidney of Pregnancy?"

Before considering these facts in relation to this question, it is best to draw a line of distinction between the work here shown and that of other investigators. This work refers to pregnancy alone and takes but little notice of changes which may occur in the kidneys in consequence of labor or of the puerperium. The work of most others takes cognizance chiefly of the kidney changes which occur in these two last mentioned periods. Trautenroth,[1] for instance, showed that while the kidneys during pregnancy showed albumin in 45 per cent. of the cases with practically

unimportant symptoms otherwise, they showed albumin in the
vast majority of cases during the parturient stage and in 29 per
cent. of the cases both albumin and casts were found. Fischer[2]
and Koblanck[3] practically substantiate these figures. It is upon
the work of these investigators that most of the prevalent ideas on
the subject of albuminuria and nephritis in pregnancy are based.
The inference, unquestionably is, that pregnancy acts as a con-
tinuous and increasing cause in the production of kidney changes.
My results do not uphold any such view. Casts appeared in but
two cases, or 2.3 per cent. It is to be noted that in one case
(IX.) they, with all other symptoms of nephritis disappeared un-
der medical treatment, although the pregnancy continued.

The microscopical constituents were found in disappearing pro-
portions, as the above table will show. Indeed one is almost
tempted to say that if what is here found to be true could be
proved so of a large number of specimens of urine, the results
would show rather a conservative than a destructive tendency in
the kidneys.

Albumin.—This occurred in thirteen cases, or 15.3 per cent. In
eleven of these cases it disappeared, and in one case even casts
and all other symptoms disappeared under medical treatment. In
one it persisted, but in diminishing quantities, until delivery. In
twelve cases, then, although the pregnancy continued, the albu-
minuria was amenable to treatment other than surgical. It is a
remarkable fact that of eighty-five pregnant women, 84.7 per
cent. never showed albumin. Trautenroth's percentage (45-46)
was based upon examinations made in 100 cases. If I had in-
cluded cases in which only one examination of the urine was made,
there would have been one hundred cases also, with an additional
case of albuminuria, making 14 in all, or 14 per cent., an even
better showing than I have presented.

Although it can hardly be said that the albumin increased regu-
larly as pregnancy advanced, it is to be noted that it occurred
seven times in the ninth month, or oftener than in all the other
months combined. This is a fact of unquestioned significance.

It might seem from what has been said that the writer does not
believe in the "Kidney of Pregnancy" or in the nephritis of that
condition, but such a view would be far from the truth. No one
could say that changes in the organs mentioned are not possible,
when 15.3 per cent. of the cases showed albuminuria, nor could
one doubt that nephritis itself, active, destructive process, could
result during pregnancy, if one considered the presence of casts,

albumin, etc., of Case IX., even if all these symptoms did disappear under treatment. But, if for the sake of argument, all cases of uncomplicated albuminuria be disregarded, Case XII. would prove the possibility of nephritis and that of the most dangerous form. If, in this case (XII.) it be shown that there was neither alcoholism, syphilis, malaria, acute infectious disease nor other demonstrable cause; if, more important than all this, it is remembered that all symptoms disappeared practically with the ending of pregnancy, no greater clinical proof could be presented that pregnancy or some of the systemic changes which pregnancy brings about, must be the cause of the nephritis. Grant this position and all other changes are possible and are fairly attributable to the pregnancy.

What I do wish to claim, however, is that, in all probability pregnancy does not cause as much disturbance as most investigators would have us believe, or better expressed, is not a process, which, in and of itself, tends toward destructive action in the kidneys. There must be coincident causes, secondary, if we will, to the pregnancy which tend to increased activity on the part of the kidney, to a possible exhaustion of kidney tissue, to kidney fag, if I may use such an expression, and consequently to imperfect elimination or indeed to complete retention of poisonous materials.

This means something very different from Bouchard's "Continuous secretion of poisons and retention because of kidney inefficiency," although it might be made to include this theory. It is different because consideration must be had for: the hyperemia of the kidneys from pressure upon surrounding organs by the enlarging uterus, and the possible effect of the rhythmical contractions of the uterus during pregnancy; the floating into the maternal circulation of the products of tissue metamorphosis from the mother's system as well as that of the fetus; the absorption from the digestive tract of the products of imperfectly digested food or of decomposition; the nervous influences which pregnancy produces in certain women, and which modify all processes, whether assimilative, secretory or excretory.

The best evidence which this paper presents is that in nearly all of the cases, unloading of the intestinal tract and incidentally of the kidneys, restored the patients to a practically normal condition. This is another fact of the broadest significance.

Yet another fact which future investigations may prove to be of great importance is the specific gravity, especially when albumin coexists with a high degree of the former. If we grant that preg-

nancy brings about a multitude of changes in the woman's organization, that, as has already been said, the nervous, assimilative, secretory, excretory and circulating systems all become more or less involved, all more or less deranged to be more explicit, why is it not possible that the albuminuria and the nephritis of the condition result in certain women because of this very derangement, while the great majority are able to carry off the effects of unusual involvement, to be normal, as woman in her uncivilized state is always supposed to be. Pregnancy is a physiological process in a physiological or normal woman. It is abnormal in many cases under our systems of education and training. It is to these faults that one must look for the causes of albuminuria and nephritis.

TREATMENT.

The treatment which was followed in all cases of albuminuria, except Case XII., was rest in bed; catharsis by blue mass or calomel and salines; absolute milk diet.

In Case IX., in which albumin and granular casts appeared during the eighth month, this treatment was followed, in five days, by subsidence of all symptoms of nephritis and their complete disappearance in a week. The albumin was so much less in quantity, after three days of treatment, that active interference was not considered necessary.

In Case XI., in which albumin persisted until the time of delivery, this treatment was relied on because neither casts, red blood corpuscles nor other evidences of nephritis appeared at any time.

In Case XII. accouchement forcé was performed twenty-six hours after the patient was first seen, because the albumin, instead of diminishing under this treatment, had increased in quantity and besides was accompanied by the presence of casts, red-blood cells, leucocytes and particularly because the quantity of urine was reduced to 12 oz. in 24 hours. The subsequent examinations of the urine demonstrated the necessity for this interference and showed how imminent eclampsia had been.

If a rule of treatment should be formulated from cases here presented, it would be: Symptomatic procedures, when albumin occurs without casts or other symptoms; accouchement forcé, when casts, red-blood corpuscles and diminution in the quantity of urine accompany the albumin, unless these signs show marked improvement in say twenty-four hours. All authorities agree that the presence of hyalin casts with albumin does not warrant active

interference, but I should lay great stress upon the results which active medical treatment might have in a particular case, indeed, I should employ measures for the immediate ending of the pregnancy if the albumin should continue to increase in quantity and the daily quantity of urine should at the same time be greatly diminished, even if there were no casts nor other signs of nephritis.

REFERENCES.

[1]TRAUTENROTH : Zeitschr. f. Geb. u. Gyn., Bd. 30, 1894, S. 106, et seq.
[2]FISCHER : Archiv. f. Gyn., Bd. 24.
[3]KOBLANCK : Zeitschr. f. Geb. u. Gyn., Bd. 29, 1894, S. 268.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, February 20, 1903.

The President, G. WYETH COOK, M.D., in the Chair.

DR. BALLOCH presented a dermoid cyst of the left ovary. The specimen was from a colored woman, twenty-seven years of age, whom he saw in consultation with Dr. A. Francis Foye. The history was that she had been in perfect health up to the time of the birth of her only child in 1896. Since that time there had been almost constant pain in the back, running thence toward the left ovary. The pain was aggravated by menstruation and by overexertion. The menstrual history presented nothing abnormal. Upon examination there was detected a mass in the left side of the pelvis, sausage-shaped, and lying in the direction of the tube. The uterus was normal in size and position, but not freely movable. From its size and location the mass was thought to be an enlarged tube. She was sent to the Freedmen's Hospital and operated on February 16, 1903. When the abdomen was opened it was readily seen that the mass involved the ovary, and the left tube and ovary were removed without especial difficulty. The hard plaque was felt in the wall before the ovary was removed.

The specimen presents the ordinary elements of a dermoid, hair, sebaceous matter and a flat plaque of bone. As this particular teratoma contains hair and bone, in addition to the epithelial debris, it is evident that it was derived from an epiblastic matrix which formed after the differentiation of this layer.

DR. K. SINCLAIR BOWEN told of the five following cases :

(1) Hysterectomy (supra-vaginal), amputation at internal os,

removal of fibroid uterus with left ovary and tube, leaving the right ovary. The patient, a young woman, menstruates regularly from the cervical stump and has no menopause symptoms.

(2) Vermiform appendix removed a few hours after a severe chill, occurring twenty-four hours after the first symptom of appendicitis. The appendix ruptured just before its complete removal from the abdominal cavity. The peritoneum was shielded by gauze as was also the abdominal wound, so that primary union was secured.

(3) Vermiform appendix removed during interval between attacks. The specimen is only slightly altered although several severe attacks had occurred.

(4) Myomectomy at the end of the third month of pregnancy. Three subperitoneal fibroids removed by abdominal section. Pregnancy progressed to full term and ended in normal delivery.

(5) Hysteromyomectomy at the end of the fifth month of pregnancy performed during labor. There was a large fibroid filling up the pelvis and one on the fundus uteri pressing up under the ribs. The placenta was found attached to a large fibroid when the specimen was opened. The patient made a good recovery.

Dr. Bovée said adhesions would dissolve away even when pus is present. He saw a case in consultation and again eight months after. She had had two attacks. He then operated and removed about an ounce of pus post peritoneal and closed without drainage. He thought the pus came from the second attack. The appendix was comparatively normal. He thought when pus was present patients might get better but not well. He had three other similar cases. He also reported a case with two or three small concretions. At times there might be very distressing symptoms in a very sound appendix. Sometimes one found the cecum in the pelvis and appendix in the cul-de-sac as in a case in which he was doing a hysterectomy.

Dr. Stone thought that in pregnancy the question was whether a fibroid would interfere with pregnancy and labor. If interstitial it was dangerous and should be removed.

Dr. Bovée said patients would frequently menstruate after the removal of both ovaries. Removal of the Fallopian tube and leaving the ovary was good practice. If a Fallopian tube was left the flow might empty into the abdominal cavity.

Dr. Prentiss asked where the flow came from when the patient menstruated after hysterectomy.

Dr. Miller cited a case of a young girl in the service of Dr. Kelly at Johns Hopkins Hospital who had a large appendical abscess which was opened and drained, the patient making a good recovery. In a year she returned and the abdomen being opened, he found the appendix adherent to the abdominal wall and apparently healthy.

Dr. Bovée said the hemorrhage came from the mucous membrane of the cervix, like a vicarious menstruation.

Dr. I. S. Stone reported a case of

OBSTRUCTION OF THE BOWELS DUE TO TORSION OF THE MESENTERY AND THE PRESENCE OF A MECKEL'S DIVERTICULUM.

(With One Illustration.)

Miss M., æt. 30, had suffered from repeated attacks of obstruction of the bowels since the fourth year of her age. These attacks had previously yielded to medical or mechanical treatment but always caused grave apprehension of either a surgical operation

1 and 2. Points united by buttons.

Distended bowel.

1.

Section of Dist. bowel.

Point of Comp. occlusion due to torsion of Mesentery.

Portion of thin or false Mesentery few vessels.

Diverticulum.

Normal Collapsed bowel. 2.

Section of bowel cut away to show Diverticulum.

Section of Dist. bowel.

under disadvantageous circumstances or possibly a fatal result. Dr. Shands was called into the case on Dec. 4th, and Dr. Stone early the next morning. The treatment by the usual remedies including the administration of purgative enemata having failed, an operation was decided upon and executed without delay. Operation at 2 p. m., Dec. 6th, 1902. The abdomen was not greatly distended, nor was the condition of the patient such as to suggest the presence of peritonitis, temperature and pulse normal with the

exception of the slowness of the latter which was about 50 per minute. Patient in excellent condition for operation. Incision in the median line from umbilicus to pubis. The entire small intestine save the last twenty inches was distended with thin fecal matter and some gas; the liquid matter was in excess and this explained the absence of tympanites and the presence of dullness on percussion over the greater part of the abdomen and especially on the left side and in the pelvis. He had nearly to eviscerate the patient before the seat of obstruction could be located. When the intestines were removed from the upper right side of the cavity it was easy to see that a torsion of the mesentery existed and that such might be the cause of the obstruction, and it was after this twist had been corrected that he discovered the stenosed portion which is associated with the diverticulum. The operation consisted in freeing the thin peritoneal substitute for a mesentery at the point of constriction which had undoubtedly assisted in binding or pulling down the slender bowel at this point. Then the distended bowel above the constriction was united to that below by means of a Murphy button, and the operation completed after evacuating a large amount of the thin fecal matter and gas from the distended coils of intestine. Very slight wound infection followed the operation, which subsided before the sutures were removed, being entirely due to superficial contamination. With this exception the recovery had been most gratifying and in fact without complications. It was now four weeks since the operation, the patient was ready to leave the hospital but had not yet given up the button.

DR. BALLOCH said Dr. Stone need not be worried about his button. He had had one pass after three months.

DR. D. G. LEWIS read a paper on

TUMORS OF THE ROUND LIGAMENT OF THE UTERUS.[1]

DR. MILLER said Cullen had reported two cases of adenoma of the round ligament and Micklehousen two others. In these cases the patients had pain in the tumors during menstruation.

DR. BOVÉE said he had seen two cases, both sent to him as hernia. One physician said he had reduced the hernia. He was not well pleased with the title extra abdominal as the tumor might be in the abdominal wall. In one of his cases cysts were within and inside the abdominal wall. The essayist was complimented because he sutured the stump to the abdominal wall but he preferred to stitch it to the fascia.

DR. SHANDS said he had once operated on a case but did not at first make a correct diagnosis.

[1] See original article, page 198.

Meeting of March 6, 1903.

The President, G. WYETH COOK, M.D., *in the Chair.*

DR. ELMER SOTHORON read an essay on

THE ACTION OF THE UTERUS IN NORMAL LABOR.[1]

DR. H. D. FRY had listened to the essayist's paper with much interest but found it almost impossible to discuss many points as he might if he had had the opportunity to read the paper. As one criticism would occur to his mind others would come up in turn and produce mental confusion. The essayist dealt in speculative realms and it was very hard to prove or disprove many of his assertions.

Among other things he had claimed that the pain of labor was due to the degeneration of the longitudinal muscular fibres. It was inconceivable that a certain set of muscular fibres in an organ should degenerate simply because they run in a certain direction while others do not participate in the process because they run in a different course. Degeneration affecting the muscles of the uterus would be likely to involve the whole organ. He himself considered the pain of labor due to the degeneration of the nervous system rather than of the muscular. Social life of woman tended to increase all nervous affections; the reflexes, hysteria and the emotions generally. The essayist claimed that dilatation was due to the greater strength of the longitudinal fibres overcoming the circular and that the bag of waters had no function in the process. To prove that the circular fibres were stronger than the longitudinal the speaker would call attention to the fact that the uterus lengthens during the contraction. To his mind the dilatation was not the result of any antagonism between the two sets of muscular fibres; he thought they both acted together and by increasing intrauterine pressure the force of the elastic bag of waters was expended upon the weakest part of the wall, the os. Furthermore, as labor progressed, the muscular fibres were drawn up to the body of the uterus, increasing the strength at this point and weakening it at the os. The round ligaments draw the fundus forward and fix the uterus while the sacro-uterine ligaments tend to draw the cervix backwards and upwards. That the bag of waters acts as a hydrostatic wedge was scarcely questioned at the present day and the advantage of it was familiar to every one who practices obstetrics. It was a common occurrence that dilatation would progress very slowly when the bag of waters had not formed, then by pressing up the presenting part during uterine action, the fore-waters would form and dilatation usually progress satisfactorily.

DR. A. F. A. KING said that the paper of Dr. Sothoron was extremely interesting but it contained such an avalanche of statements that he hardly knew what particular points to discuss. In such

[1] See original article, page 214.

elaborate papers it would add greatly to their merit if the author
would formulate some definite conclusions at the end, to which
special attention might be directed. We must commend the spirit
of speculation and originality that pervades the paper. Specula-
tion is the pioneer of discovery; and whether the speculations turn
out to be correct or otherwise, they at least give birth to new ideas
and indicate new channels of thought along which unexpected
discoveries of value frequently result. Without attempting to
follow the lines of Dr. Sothoron's paper he would follow his
example and inject into the subject a speculation of his own, which
might help in explaining the muscular action of the uterus. All
modern biologists and physiologists recognized a certain similarity
between the nervous system and an electrical machine. The brain
was the power-house where motor force was generated; the
nerves transmitted this force, as wires transmit electric currents.
Yet no one would allow that the force generated in the brain was
really electricity. This was immaterial. A name was nothing.
Call it electricity, a magnetic or vital force, or nerve force; this
made no great difference for our present purpose. Some animals
did however generate real electricity. Familiar examples were
the gymnotus which kills its prey by an electric discharge, and
electric eels which have been known to kill a horse. The old idea
that the vital force of a living being was something specific and
different from such manifestation of energy as occur from chem-
ical and physical changes of matter outside of the body, was a
mistake. We were fast coming to the conclusion that every
process taking place in a living organism is capable of being re-
peated in the laboratory, and will be so repeated when the knowl-
edge of the experimenter shall have become sufficiently advanced.
To promote this advancement nothing was more desirable than
for investigators to lend themselves thoroughly and without re-
serve to the view that the human body is at least a quasi electrical
machine. He would let this be our working hypothesis. Should
it turn out to be wrong it could be abandoned. Motor power was
certainly generated in the brain; and power was generated by the
decomposition of metals in an ordinary battery. By what physical
process does brain-power originate? The two elements of battery
in the cerebral power-house, were venous blood and arterial blood
About two years ago he read some experimental demonstrations
of this statement. Thinking over the matter one could not fail to
observe that the venous blood is contained in comparatively large
spaces, sinuses, while the arterial blood flows in small vessels, both
sets of vessels being contained in and surrounded by brain matter,
into which the power generated is diffused, stored up and trans-
mitted to such distant parts of the body as may be determined by
the will of the individual turning the current on or off as may be
desired. If the two bloods mixed the battery would be spoiled.
If the bloods were taken away the generation of power would
stop, just as surely as a galvanic battery would cease to generate
force when its metals and acids were withdrawn. We did not yet

understand the relative insulating or conducting power of the surrounding tissues and membranes. We could not yet take venous and arterial blood into the laboratory and so arrange them with proper insulation and transmitting apparatus as to imitate the work of the brain. But the time was coming when this would be done. In the fully developed pregnant uterus was found the same arrangement of our two elements of battery; viz., venous blood, and arterial blood, as found in the brain, that is to say, large sinuses of venous blood and smaller vessels of arterial blood, the arteries being peculiarly spiral or helicine. One would almost hope to find running through the coil of an arterial helix, a central coil of venous blood, such an arrangement suggesting the evolution of magnetic force, but such an arrangement was not known to actually exist. Assuming, by way of hypothesis, that the two bloods (venous and arterial) are so arranged in the utero-placental circulation as to produce the same power (electric, magnetic, nervous, vital or what you will) as is produced in the power-house of the brain, the conception would help to explain certain phenomena of uterine contraction that had hitherto been puzzling. In the soft uncontracted uterus the venous sinuses and arteries would fill to their utmost capacity, like a battery supplied with its elements; slowly the changes of matter would take place by which motor-power is produced (no matter whether magnetism, electricity or both) and when the motor force reached a certain cumulative degree it would discharge or diffuse into the muscular walls, and a contraction begin, feebly at first, then more completely, until at the height of the pain the sinuses and arteries would be emptied of their venous and arterial blood; the battery, bereft of its elements, stop working; the generation of force cease, the contraction relax, then again the sinuses and arteries surge with their respective bloods, and power begin to be generated for the next contraction. Thus the uterus in labor would supply its own motor power, independent, to a certain extent, of the nerve power it receives from the central nervous system. Hence the uterus might go through contractions after the woman was dead (*i.e.,* when the power house of the brain has ceased to work) ; or after the woman has become completely paraplegic. Children had been born under both these conditions. During the early parts of pregnancy when the "battery" arrangemnts of the uterus were small, only a little power would be slowly generated, but still enough to produce the intermittent contractions, at long intervals, that we recognize as a positive sign of pregnancy. During the last lunar month, the power and consequent contractions, would become more pronounced, and the woman feel them as painless (inexactly called "insensible") contractions, indicating the near approach of labor. Finally the evolution of power and the consequent more forcible uterine contractions would increase to such an extent, that the sphinctorial neck of the uterus would feel the impact of pressure from the uterine contents ; this impression be signaled to the central nervous system, whence there would be reflected to the uterus co-oper-

ating power from the nervous system; thus the powers generated in the batteries of the womb and brain, would join hands, and unite in the culminating effort of parturition, and we should say labor had begun. All this was indeed pure speculation, and perhaps too vague to merit scientific consideration. But more might be said in its support. The heart itself, with its rushing currents of venous blood on one side, and arterial blood in the other, might constitute another instance of power production. In fetal life, when the heart had less work to do than after birth, the generating power of its veno-arterial battery was impaired by the two elements not being kept completely separate, and the cardiac battery then generated power like the adult heart, without impairment from admixture of the battery elements. The organs of coition, under excitement, (in both sexes) presented another example of two sets of vessels engorged with their respective venous and arterial bloods, and with the consequent generation of magnetic or electric power, came the exalted sensibility of the organs and erotic pleasure. When by the contrast of coition, the power was discharged (like a battery) the exalted sensibility disappeared, until the event of vascular engorgement recurred. Why a drachm of seminal fluid in the seminal vesicles should be so potent an element in determining the occurrence of the initial vascular enlargement of the organs, we might not be able to explain. Most of us were too ignorant to understand Marconi's wireless telegraphy, and there were more things in the magnetic fields of venous and arterial bloods than were dreamed of in our limited philosophy. Some years ago (meeting of April 5, 1889. See AM. JOUR. OBSTETRICS, Sept., 1899, p. 971) when discussing maternal impressions in this Society, he ventured to suggest that the umbilical cord itself—even without nerves—might constitute a sort of magnetic link between mother and child by which a current could be carried from one to the other. In the vascular arrangements of the cord the two umbilical arteries were coiled like a helix round the vein as a central core. Was a magnetic current thus developed? And if so, were the jelly of Wharton and the amniotic covering of the cord magnetic insulators? These and a host of other questions arise for future investigation and experiment growing out of the hypothesis of the venous and arterial bloods being battery elements, and the whole organism a magneto-electric machine.

Stated Meeting March 20, 1903.

President G. WYETH COOK, M.D., in the Chair.

DR. STONE reported a case of apparent shock or embolism appearing suddenly, fifty hours after operation for appendicitis. Sudden death on the tenth day, due to rupture of abscess into bronchus. Mrs. T., forty-five years of age, was first seen by Dr. Stone on Feb. 15 at about eight o'clock in the morning in

consultation with Dr. Wynkoop of this city. She had suffered during the past twenty-four hours with symptoms of appendicitis, and they accordingly advised operation the next morning, unless the symptoms rapidly improved. She was removed to Sibley Hospital, and an operation was performed on Feb. 16, at 2 p. m. Dr. Wynkoop gave the anesthetic and Dr. Lewis assisted. The appendix was very long and was adherent outside the ascending colon, its distal extremity nearly reaching the lower end of the right kidney. A small abscess was found here surrounding the tip of the appendix, containing perhaps two ounces of offensive pus and a large oval shaped concretion which had escaped from the appendix at the point of rupture. After cleaning out the pus and placing a drainage tube, the abdomen was closed in the usual manner. The patient was put to bed in excellent condition, although the temperature and pulse had both increased before operation, causing a feeling of regret that she had not been operated upon the night before. When visited by Dr. Stone on the day after the operation the patient was doing quite as well as could have been expected, although her pulse had not been greatly reduced and her temperature that morning reached 101. She passed a fairly good night and at four o'clock the next day Dr. Wynkoop reported her condition to be better. Her pulse was reported to be 104 and the temperature 99 plus. At 4.30 the patient's condition rapidly changed for the worse and the gravest fears were entertained by those around her that she would not live. Her pulse was very rapid and weak, and it could not be counted at the wrist when Dr. Stone reached the hospital a little after six o'clock. She was still conscious, however, and they thought she was perfectly capable of understanding all that occurred during the time of her severe illness. Her temperature had fallen to 97, and there was every indication of a rather desperate and almost hopeless condition. Her pulse was absent in the left radial artery for a considerable space of time, and they feared that a heart clot had formed which extended to and occluded the sub-clavian artery on that side. This, however, proved not to be the case, for the pulse finally returned of equal strength in both sides. The normal heart sounds had disappeared, and in their place was observed the usual feeble muscular action of the heart seen in severe shock, which lacks the rhythm of the normal contraction. He was quite confident that the patient would not survive and so expressed himself. He determined to resort to transfusion as a possible means of restoration. The patient had been stimulated pretty well with atropia, nitroglycerin and strychnia and her face was slightly flushed and the pupils dilated by the first named drug. After some delay and failure to find suitable needles for subcutaneous administration they decided to resort to intravenous transfusion of normal salt solution. About a quart of salt solution was introduced into the right median basilic vein, which had a very happy effect, notwithstanding the unfortunate occurrence of a chill which continued for several minutes. The

chill was probably caused here, as in many instances by lack of suitable outfit which enables one to keep the solution at the proper temperature. A hypodermic injection of morphia was administered to relieve the active distress occasioned by the chill, and it had a very happy effect upon the heart also. He is very well pleased with this effect of morphia. It seems the sheet anchor in the treatment of chills due to this cause. According to Dr. Wynkoop, who remained with the patient all night, the pulse was not fully restored until two o'clock, or five hours after the transfusion. Her condition continued to be fairly satisfactory for eight days, although the pulse and temperature reached 120 in the evening and her temperature ran from 99 to 100. She had some pain in the region of the liver or in the lower lobe of the right lung, attended by rather quick breathing, but had no cough. On the tenth day, or eight days after the sudden seizure, she was found in extremis by the nurse at about eight A. M., and was discharging pus freely from her lung per orem. They saw her at nine o'clock and found every indication of impending death. She coughed constantly and expectorated pus freely, which had a very offensive odor. It appeared to be impossible to attempt any measures of relief, and although they aspirated and then incised the pleura, thinking to find pus in that cavity they failed, there being merely serum, quite unlike that which was being discharged from the lung. The patient died two and a half hours after the rupture of the abscess. There was no autopsy held.

Dr. Bovée said appendicitis with pus was especially prone to foci with suppuration. These were thrombi, not emboli.

Dr. Miller cited a case of a woman who had been operated on, and who was suffering from secondary shock. Nothing was made out from an examination of the lungs. She died twelve hours after. Autopsy found an embolus in the lung. Sudden death after operation might be due to embolism.

Dr. Miller read a paper on

CONGENITAL DILATATION OF THE GALL-BLADDER AND BILE DUCTS.[1]

Dr. Stone said that the experience of most surgeons in liver surgery, was with adults. A great variety of retention cysts were seen, but one could not say that they were congenital. The most important item was the extreme rarity of such a condition. In cases of long standing the fluid is mucus and not bile. Ricketts reports the largest collection in the gall-bladder (two gallons) but there was no bile or stones. This case had been tapped. The history of these cases showed the closure to have taken place years before, but not to be congenital. It was difficult to say what was the cause of the abscess in Dr. Miller's case.

Dr. Bovée had not had the good fortune to meet with such a case. He was pleased with the essayist's conduct of the case. The literature of the subject shows liver cysts to be rare. He had presented a cyst of the liver to the Medical Society and the speci-

See original article, page 182.

men was now at the Army Medical Museum. The liver reached down below the umbilicus.

DR. BALLOCH said that Dr. Miller showed great discretion in operating in two stages.

DR. STONE asked if at any time before the essayist had seen the patient, there had been bile in the urine, and what evidence he had of cyst of the liver.

DR. ACKER said in his service at the Children's Hospital since 1876, he has never seen a well-marked case of cyst of the liver. Our people did not suffer with these peculiar diseases, and we did not have the large foreign population seen in the large cities.

DR. BOVÉE said it was very easy to exclude hydronephrosis. There was less amount of urine from the cystic kidney, and it contained less salts. The urine should be collected by segregation.

DR. MILLER said he did not know what had closed the common duct. It was dilated into the cyst wall and the opening of the two branches admitted the thumb. He had never looked up the subject of dermoid of the liver. When he saw his case in the country he said the tumor was in the place of the gall bladder, but after he returned home he thought it might be a hydronephrosis. Under anesthesia it was plain it was not the latter. The diagnosis between dilated gall-bladder and hydronephrosis was difficult. He made his diagnosis from the position of the tumor. He could conceive of segregation or catheterization of the tumor in a child. The stools had been markedly clay colored and the urine perfectly normal. Encysted tubercular peritonitis was not difficult to differentiate. He hardly expected the opening to close in two and a half months. As long as the child was in good health he would not interfere. The child gained rapidly after the operation. It was interesting to him to know what effect the loss of all the bile would have. She appeared to suffer no inconvenience. Robson had reported a case which did well for fifteen months. In his case before operation probably a little bile escaped along the common duct. He reported the case to Osler who thought it a congenital obliteration of the common duct.

Stated Meeting, April 3, 1903.

President G. WYETH COOK, M.D., *in the Chair.*

DR. SHANDS read the paper

TREATMENT OF CLUB-FOOT IN CHILDREN UNDER THREE YEARS OLD.

DR. E. E. BALLOCH said the subject was more restricted than he had thought and that he had to agree with the essayist. There were three things to contend with, bones, tendons and ligaments. In the equino-varus it was the ligament which kept up the deformity. The manipulations must begin early, for after the third year the astragalus is ossified. The key-note was to keep over-

correction for a time, to prevent a relapse. Hospital cases were
apt to drift away so that the position of the foot was not kept up.
It required everlasting vigilance on the part of the surgeon, parent
and nurse. It took a long time to tire out these ligaments; Dr.
Shands had said six months, he would say longer. The bones had
to acquire new facets. In arrested development cases there were
objections to all the theories propounded. The treatment of club
foot was early correction, over correction and to keeping it up for
a sufficient time.

Dr. J. Ford Thompson said that the case Dr. Lorenz operated
on here was still wearing the same dressing and was walking
around. He would take off the plaster soon. The boy suffered
severely for a week. Good results should always be obtained in
subjects under three years. Every child ought to be cured in the
first year and the parents should be taught to keep up the treat-
ment until cure was effected. Phelps' operation was an open
question. So many good results had been obtained that it should
not be condemned. The operations that failed might not have
been done well. Phelps' was an over correction. The tendons
and muscles on the inner side of the foot should be cut. It left
an ugly scar. Phelps had had wonderful success. There was no
harm in cutting a muscle when necessary, but the Achilles tendon
should not be divided unless the front foot was put in position.
He had a case in a man whose Achilles tendon had been cut. The
posterior muscles were paralyzed, which gave him a foot like a
flail. His walk was very awkward. He thought he would shorten
the Achilles tendon and splice on the perineus longus by splitting.
These operations were not done at so young an age. Some proper
surgical procedure should be practised, whatever the age.
In infants he would teach manipulation. Plaster of Paris was the
best material to keep the foot in position and it should be put on
rather thick and the child allowed to walk. All the deformity
should be corrected before letting the patient go. If possible the
child should be cured before it walks. It should be encouraged
to walk. The only benefit of a shoe after the deformity had
been corrected was that it served to keep the foot in the proper
position.

Dr. Wellington said early treatment was most important
when the bones were soft and the muscles and tendons stretch
easily. To make manipulation good it must be with some re-
straining apparatus. The foot should be put in an over corrected
position. The shoe should be watched to see if both sides wear
alike and the side fixed accordingly.

Dr. W. P. Carr said it was interesting to see what deformities
could be corrected by gradual manipulation without much force.
Especially was this true in the knee-joint, even a right angle at
the knee might be overcome by a small amount of straightening
and leaving on the cast for a week and then straightening more
until the joint was straight. The same applied to the foot. When
the deformity was corrected put the pressure where it ought to be

and absorption of bone tissue would take place. In this way very few cases needed operation. We were correcting club feet under anesthesia, but it could be done just as quickly without. He thought this better than a cutting operation.

DR. SHANDS said he did not mean to condemn Phelps' operation in patients older than three years. He has done the operation with good results. Flail foot could be better done, not by tendon splitting but by arthrodesis and getting a stiff joint.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of April 17, 1903.

The President, CHARLES S. BACON, M.D., *in the Chair.*

DR. HENRY BANGA presented the following specimens:

1. *Lithopedion.*—Procured six days ago by a laparatomy on a woman, forty-five years old. Had diagnosed a fibroma, the size of two fists, containing calcified portions, and advised hysterectomy, on account of pain connected with the tumor and a suspicious-looking, lacerated, bleeding, ectropic cervix. Began the operation from the vagina by carefully loosening the cervix. After this opened abdomen, and at once recognized that the tumor did not belong to the uterus. After detaching adhesions from bowels, omentum, bladder and abdominal wall, removed what was thought to be a dermoid cyst, containing pieces of bone. In slitting open its tough sac, the remnants of the skeleton of an almost fully developed fetus were found. The cranial bones, clavicular ribs, arms, etc., were well preserved. Besides the bones, the sac contained an oily fluid.

On questioning the patient as to her previous history, the fact was established that fourteen years ago, for about ten months, she went through a series of symptoms diagnosed as "missed menses," "retained menses," "pregnancy," "abortion," "threatened abortion." The true condition, "extrauterine pregnancy," was not recognized. By and by everything quieted down, and finally the patient forgot all about it, although, afterwards, the right side was "never right."

2. *Unruptured Tubal Pregnancy.*—In a II-para of ten to twelve weeks' duration. The interesting clinical feature in the case was that on account of a habitual retroversion I did not recognize the extrauterine pregancy, until with the growing ovi sac the uterus moved forward. This spontaneous correction of the position of the uterus occurred between two examinations, not more than twelve days apart. During four weeks of observation no signs of rupture were noticed. Going on the operating table, the

patient's pulse was 72. There was not even a drop of blood found in the abdominal cavity.

3. *Hydatid Mole.*—Patient, 45 years old, had missed her menses for five months. Having come to the conclusion that the uterus contained either a mole or a dead fetus, I introduced a tent. There being no reaction after twenty-four hours, another one was inserted. Two hours later violent uterine contractions set in. After the pains had been coming and going for two hours, the patient had a chill, lasting one hour, the temperature then reaching 105°. Pains lasted eight hours, when the mole was expelled *in toto.* Six hours after its expulsion the record showed normal temperature. The uterine contractions, by stirring up circulation, caused absorption of infectious material (decomposed blood); hence the chill and the sudden rise of the temperature. As soon as the uterus became quiet (after the expulsion of the mole), absorption ceased, and the temperature dropped to normal. This clinical observation illustrates very nicely why, in puerperal infection, for instance, the uterine douche is often followed by a chill and high temperature.

Dr. Thomas J. Watkins.—It is rather unique to have tubal pregnancy so far advanced, without rupture or the escape of some fluid through the abdominal ostium. I was under the impression that one could not get a fetus of that size in the tube without causing a rupture.

Dr. Chas. B. Reed read an essay on

THE RELATIONS BETWEEN PERITONEAL ADHESIONS AND THE FUNC-
TIONATING UTERUS.[1]

Dr. A. Goldspohn.—What the essayist has said and the cases he has cited are interesting, and there is nothing to doubt or to deny as to the truth or importance of the subject. Now, in that connection, if this is true of so hardy an organ as the uterus, a muscular structure of considerable volume and resisting capacity, with extensive capacity and great inducements to move in greater excursions, how will the more tender delicate and far more sensitive appendages fare with reference to such adhesions. The tubes are more tender than the uterus. They cause pain more easily, and more pain, with an equal extent of inflammation than the uterine wall. The ovaries are very much more sensitive structures, largely composed of glandular parenchyma, and more highly endowed with nerves than the uterus. How will such adhesions act on these structures that have less inclination and much less inducement to move and to free themselves from adhesions. Adhesions to the adnexa are very much more frequent than adhesions to the uterus. We frequently find a retroverted uterus with some difficulty in grasping it bimanually and often come to the conclusion that it is adherent: but on putting the finger into the peritoneal cavity we find it not adherent. A German called it fixation by

[1] See original article, page 154.

cohesion or suction in the cul-de-sac. But the adnexa are found adherent in many of these cases, and the uterus cannot rise because it is held down by its wings.

I simply wish to say that if these things which the essayist has properly set forth are such evils upon the uterus, then they are much greater in their evil effects on the adnexa. In the absence of puerperal conditions, infection nearly always comes through the lumina of the uterus and tube, and the initial peritonitis is about the ovary and tubal ostium where peritoneal adhesions are therefore most frequently found. It will make much difference as to what was the position of the uterus and its adnexa before the latter became adherent. If it was retroverted or prolapsed, the adnexa being out of normal location, become adherent there and produce greater symptoms. It is right here that the pathology of retroversion and retroflexion is chiefly to be found. The help-less and more delicate and sensitive adnexa give expression to the more important symptoms of the displacement.

Dr. Reed (closing the discussion).—It was with considerable mental pain that I concluded to avoid discussing tumors in con-nection with this paper. We all know that adhesions are much more common in the presence of tumors than in any other patho-logic condition and I felt that I was excluding the most interesting part of my subject, and yet, to incorporate it in my paper would have made it far too long for presentation here. The literature on that subject is so abundant that it will make an extremely inter-esting paper, if considered by itself.

Dr. Charles E. Paddock read a paper entitled

ANTE-NATAL RIGOR MORTIS.[1]

Dr. Emil Ries.—I was particularly interested in the intro-ductory remarks concerning the physiology of rigor mortis, and am sorry that Dr. Paddock did not enter into the chemistry of the dying and dead muscle. I hope that in his closing remarks he will tell us something more about myosin. There is so little known about it that any additional information is welcome. The most interesting question about ante-natal rigor mortis is—Why is it seen so seldom? There are many dead children born every year, and yet the condition of rigor mortis is not reported. Per-haps, those who observe it do not always take the trouble to report it. It is probable that the obstetrician is more interested in the condition of the mother than that of the fetus, and may, therefore, not observe the rigor mortis. Very little is known of the rigor mortis in non-striated muscle. Thousands of uteri are removed every year, and yet I do not know of any statement showing whether that uterus goes through rigor mortis, and when, if at all.

In taking out appendices, the operation is usually a rapid one, and the appendix is handed around to the admiring spectators soon after operation. Only a few minutes elapse between the removal

[1] See original article, page 145.

of the organ and its inspection. I have had occasion to examine a number of appendices, and it is remarkable how soon after death of the organ rigor mortis may be observed. Yet I have never seen any mention made of this fact. It can be observed as early as ten minutes after removal, and will last for an hour or more. Soon after its removal, it is easy to demonstrate strictures in the appendix which never existed. The rigor does not occur over the entire appendix at the same time, but appears in portions of the appendix.

We know nothing about rigor mortis of the uterus. I have not had occasion to make such observations. After removal of the organ we are busy, usually, for some time closing the wound, suturing, and so forth, and the care of the patient, and we do not immediately examine the uterus. That may be one of the reasons why we know nothing about rigor mortis of the uterus. This would be an interesting subject for examination, because rigor mortis in non-striated muscle appears and disappears under apparently different conditions from those under which rigor mortis sets in in striated voluntary muscle.

I received to-day the latest issue of the *Archiv für Gynäkologie,* which contains a paper on rigor mortis by Wolff. He reports four cases, and collates 34 cases. Of these, 8 were observed in eclampsia, a comparatively large percentage. The question arises in the author's mind whether the eclampsia had anything to do with rigor mortis in the fetus; whether it would occur earlier and more extensively than in other conditions. The question is worthy of discussion, because it is possible that with the passage of certain poisonous substances from the mother to the fetus, death of the fetus takes place. It has been shown recently by Schmorl and others that pathologic changes similar to those seen in eclampsia in the mother occur in the fetus, and observations have been made of fetuses born alive and showing symptoms of eclampsia afterwards. It would be interesting to make closer observations in these cases of eclampsia if there is such a thing as intra-uterine eclampsia that would bring about convulsions, and just this condition of exhaustion of the muscular system to which Dr. Paddock alluded when he referred to the dead soldier, who, after severe muscular effort, went into rigidity at a very early period after death. It is perfectly possible that the unknown substance which produces eclampsia passes through the fetus, producing eclampsia, leading to convulsions, exhaustion of the muscular system, and the early occurrence and long duration of the rigor mortis. That would explain the frequency of observations of rigor mortis in cases of eclampsia. I have never observed any such case and am, therefore, unable to say anything about the appearance of the fetus.

The question of the heart beating after the death of the fetus, again shows a difference in the rigor mortis of voluntary muscle and involuntary muscle. Because of the extensive automatism of the heart muscle, as demonstrated by old physiologic experiments,

and recently by Loeb, it is easily understood why the heart should not go into rigor as soon as voluntary muscles. Non-striated muscle apparently survives longer and may keep up rhythmic contractions after the chemical changes in the voluntary muscle have already produced complete death of the muscle.

DR. HENROTIN.—Do you consider the rigidity of the appendix as rigor mortis? It often becomes rigid even before removal, which certainly is different from rigor mortis.

DR. RIES.—Of course, when we handle the bowel we set up peristalsis, but this is not rigor, and it disappears. The contraction found after death gradually spreads all over the appendix and remains.

DR. PADDOCK (closing the discussion).—I cannot add anything to the chemistry or physiology of muscle. I simply quoted what is already known.

Regarding the question of eclampsia and rigor mortis coming on after eclampsia, it is a well-known fact that rigor mortis occurs more suddenly and more often after convulsions than any other cause. I do not doubt that if the mother has eclampsia it also may appear in the child, result fatally, and the child be born in rigor mortis in a very few minutes or hours. My object in presenting the paper was because the two cases I had are the first reported in this country, and also because in many cases of delayed labor, especially where the child is born dead, the mechanism of labor is interfered with by this ante-natal rigor mortis.

DR. A. GOLDSPOHN read a paper entitled

ELECTRO-THERMIC HEMOSTASIS WITH THE DOWNES INSTRUMENT.[1]

DISCUSSION.

DR. ALEXANDER HUGH FERGUSON.—This subject needs our earnest attention; it is a step in advance. When Dr. Goldspohn referred to ligatures and clamps, I hoped that he had learned long before now that ropes of ligatures were not necessary in pelvic surgery. For several years I have not used any catgut ligature thicker than No. 1, No. 0, No. 00.

As to electro-thermic hemostasis, as described by Dr. Downes. I think it is comparatively aseptic, more so than any other procedure. It is also antiseptic, inasmuch as the boiling heat of 212° F. will kill germs, although spores may survive. There is no doubt but that hemostasis is complete. It is also claimed by Dr. Downes that no adhesions are formed afterwards, which is very important. The Doctor stated that he doubted whether a tube like the appendix or oviduct would be completely obstructed by electro-thermic hemostasis. Dr. Downes reported a few cases where he had done an appendectomy, trusting entirely to his apparatus, and recovery was complete, so that there could not have been any opening. There are no histologic elements to be found in the tissue

[1] See original article, page 177.

that is clamped and burned, an evidence that complete destruction of tissue has taken place.

I have used this clamp in nine cases. The first was a case of cholecystotomy and appendectomy. Dr. Downes applied the instrument to the appendix and meso-appendix, and it cooked a ribbon of tissue in a few seconds. The hemostasis was complete. The stump was inverted. The patient recovered rapidly.

The second case was one of recurrent appendicitis, with a history of multiple attacks. The instrument was applied as before, and with the same result.

The third case was one of large umbilical hernia in a woman weighing 260 pounds. Four previous operations were unsuccessful. I removed the entire omentum with the instrument, a vast improvement on the old method of using a large number of ligatures. The operation was a complete success.

The next case was one of double pyosalpinx. The patient was suffering from sepsis when I first saw her, so that I did not venture to do a radical operation. I opened the cul-de-sac, removed a large quantity of pus and allowed her to go home. She returned soon after; the abscess cavities had refilled with a sero-sanguineous fluid, and I opened her again. Four weeks afterwards I used the clamp, removing all the adnexa except a part of the left ovary. The result is very satisfactory.

In the next case I did a laparotomy for multiple conditions. Both tubes were occluded. On one side I did a salpingectomy, and on the other a hystero-salpingostomy. I used the Downes instrument with great success for the removal of the tube.

The sixth case was one of nevus of the upper lip at the angle of the nose, involving a large portion of the lip. I raised the flap from over its surface, passed several mosquito forceps beneath it, thus controlling the hemorrhage, and then applied the electro-cautery to each forceps, until the tissue in the bite of the forceps was cooked. The flap was sutured with horsehair, and a dressing applied. The flap died, leaving a hole which filled up, thus curing the nevus.

The next case had a large broad-ligament cyst which was septic. I emptied the cyst, clamped it off with the electro-hemostat, removing the entire broad ligament on that side. It controlled the hemorrhage completely, and although she had been septic previously, we closed the abdomen without putting in any drainage.

The next case was a laparotomy for a double salpingostomy and a hystero-salpingostomy on the right side, and shortening of one ovarian ligament; removal of the appendix and a small ovarian cyst.

The last case was one of recurrent appendicitis, in which the clamp worked to perfection.

I think that Dr. Goldspohn is right not to trust absolutely to the clamp, as there is a possibility of a tube the size of the appendix reopening. It is wise to invert the stump of the appendix, so as to prevent the possibility of such an accident occurring.

Dr. Thomas J. Watkins.—I would like to see this method called Skene's method. He was the first to use it, and devised some instruments. The greatest criticism of this method is that it is used so little. New methods are usually used too frequently, and I am inclined to believe that this method will be used less and less frequently. I do not believe that it is a good method for the removal of pus tubes. Usually the interstitial portion of the tube is diseased and should be dissected out; this cannot be done with the clamp. The removal of a tube means the removal of a portion of the broad ligament, which should be shortened after excision of the tube to give the uterus the necessary support to prevent retroposition. That cannot be well done after use of this method. Ligatures do not give much trouble, and, since we know how to keep our hands clean, catgut has seemed to be more sterile.

I am rather surprised that Dr. Goldspohn brought up the question of doing a vaginal hysterectomy with forceps. I supposed he gave up the use of forceps in vaginal hysterectomy long ago; that he had adopted ligatures.

As regards the formation of adhesions, the use of ligatures leaves but little raw surface, which would seem to invite adhesions less often than crushed and charred tissue.

Dr. Emil Ries.—I would like to ask Dr. Goldspohn whether any animal experiments have been made as to the remote results after application of the clamp?

Dr. Goldspohn.—As to the size of ligatures, No. 1 catgut will do for work through the abdominal wall; it alone will not answer to do vaginal hysterectomy. It is not because of any trouble I have had with ligatures that leads me to do without them. I have had exceedingly satisfactory results from the use of catgut. But on general principles, it is better to get along without a ligature if we can, and that is my reason for doing so.

It is perfectly inconsistent to believe that we should be able to occlude a living tubular structure permanently by tissues treated in this manner. The boiled flesh is bound to be absorbed or disintegrated by infection and can certainly not become a cicatrix. Keefe applied this forceps to an intestine of a dog, cooked a ribbon, and then cut through the seared area, so that both ends of the intestine remained closed. He then made a side to side anastomosis, leaving the ends occluded. Every one of these dogs developed a peritonitis in a few days, and died shortly afterwards. On post-mortem examination the intestinal lumina were found open. And yet Dr. Downes claims an absolute occlusion. I think this instrument is a time-saver. In appendix operations I can cut the appendix and meso-appendix in one grasp. Every other operation requires a preliminary tying of the mesentery, and a purse-string suture of the stump.

To Dr. Watkins I would reply that Dr. Downes gives Dr. Skene due credit. He does not over-state the improvements he has made, which are sufficient I think to entitle this clamp to be called the Downes instrument. Dr. Watkins is also right in saying that the

interstitial portion of the tube which is diseased should be dissected out, and that cannot be done with this instrument. Therefore, it should not be used. As to forceps for vaginal hysterectomy, I would have Dr. Watkins understand that I have not used that method for quite a number of years. But, I have seen forceps applied and left on in the simplest vaginal hysterectomy by very prominent operators. If I am not mistaken, there are operators in this city who leave forceps on in simple cases simply because it is a little inconvenient to tie them off.

As to animal experiments, I know of none, aside from those performed by Dr. Keefe.

Experiments demonstrating the sterility of the tissue treated by this instrument would be easy and will soon be had. Two hundred and twelve degrees *dry heat* kills very little; almost nothing. But the combination of 212° and water moisture kills everything, providing it is exposed long enough. We do not know what degree of heat is involved, but its effect can be settled by taking some septic tube or appendix and making a culture from the portion of it that has been treated by this instrument.

<div align="right">RUDOLPH W. HOLMES, M.D.,
Editor of the Society.</div>

TRANSACTIONS OF THE
OBSTETRICAL SOCIETY OF LONDON.

Meeting of Wednesday, May 6, 1903.

The President, EDWARD MALINS, ESQ., M.D., *in the Chair.*

DR. RUSSELL ANDREWS read a paper on

THE ANATOMY OF THE PREGNANT TUBE.

The author discussed the reasons why accurate knowledge of the minute anatomy of the pregnant tube had been only recently acquired.

From a study of the literature on the subject, chiefly that of the last seven years, and from sections made by himself, the author gave a short description of the histological appearances of the tube and ovum in early tubal pregnancy. The question of tubal decidua was first discussed. In intra-uterine pregnancy decidual changes are not confined to the corporeal endometrium, similar changes being found in the connective-tissue cells of the cervical endometrium and ovaries, and also in the peritoneal cells. In tubal pregnancy decidual changes were found in the endometrium and in the connective-tissue cells of all parts of the tube. A compact decidua, comparable to that formed in the uterus, was not

formed in the tube, the difference in the amount of decidua in the two organs depending on differences in their anatomical structure.

He drew attention to the difference in the structure of the mucous membrane of the tubal folds, and that of the mucous membrane between the folds.

The latest researches on the embedding of the ovum in the uterus were briefly mentioned, and attention was drawn to the fact that the method of embedding of the ovum in the tube is at first similar to this normal process, but that later the ovum bores its way into the tubal muscle on account of the comparative thinness of the tubal mucous membrane.

The fetal part of the placenta formed in the tube was in every way identical with that formed in the uterus. The maternal part, however, was markedly different in the two organs.

A short account was given of the trophoblast as seen in the tube and it was shown that it was exactly like the trophoblast as described by Peters in uterine pregnancy.

The danger to life associated with tubal pregnancy was due to the deep situation of the tubal placenta and the comparatively small amount of decidual formation. Abortion and rupture were explained as being results of the penetrating action of the trophoblast. These two accidents were very similar in etiology, the former being an "internal rupture," caused, as was the latter, by the destructive action of the trophoblast. The breach of surface on either the peritoneal or mucous aspect of the tube was brought about either directly by destruction of tissue by the trophoblasts, or indirectly by increase of pressure due to bleeding from vessels whose walls have been destroyed by these fetal cells.

The author came to the following conclusions:

(1) Decidual formation does not occur in the tube in the early months of pregnancy to an extent comparable to that seen in the uterus. In many tubes the formation of a compact layer of decidua is anatomically impossible.

(2) The site of the ovum is outside the lumen in the tubal muscle. It seems impossible to explain this deep site, except as due to the eroding action of the trophoblast.

(3) The vessels are opened by the trophoblast.

(4) Rupture and abortion are mainly brought about by the destructive action of the trophoblast.

Dr. EDEN said that Dr. Andrews was to be heartily congratulated upon the interesting and important contribution he had laid before the Society. So many points were raised that criticism of the paper was difficult, but he would like to make one or two remarks upon the mode of implantation of the tubal ovum, as described by the author of the paper. On reading what Dr. Andrews had to say upon this point, he had been struck with the fact that there was remarkably little direct evidence in support of the contention that the ovum was implanted in the muscular layer of the tubal wall. With the exception of the case described by Füth, there was practically no evidence at all in support of it; possibly

the specimen shown to the Society that evening by Dr. Cuthbert
Lockyer would confirm Füth's conclusions, but at present it was
impossible to speak definitely upon the point.   On the other hand,
it was to be borne in mind that the French school, as represented
by Couvelaire and Cornil, entirely contravened Füth's position;
it seemed to him that Dr. Andrews had not done justice to the
important work of Couvelaire.   His monograph: "Études anato-
miques sur les grossesses tubaires" was the most important work
on the subject which had appeared since Clarence Webster's
"Ectopic Pregnancy," yet Dr. Russell Andrews had not made any
mention of it in his paper.   Couvelaire's view was that the tubal
ovum was never completely embedded in the tubal wall, as
the uterine ovum was in the uterine wall, but remained
with its outer pole uncovered, except by an adventitious layer of
fibrin; this he called the "free pole" of the ovum, and described
its relations with great minuteness.   This decided difference of
opinion upon a question of fact between Füth and Couvelaire ap-
peared at first sight to be very perplexing, but it was possible that
the explanation was to be found in the fact that Füth's ovum was
much younger than any examined by Couvelaire.   Our experience
in regard to the uterine ovum had taught us that developmental
questions could only be solved by the examination of very early
specimens; deductions drawn from appearances found at later
stages were very apt to be erroneous.   He, therefore, welcomed
the appearance of Dr. Cuthbert Lockyer's specimen, which ought
to yield important evidence upon this point.

Another point he wished to refer to was Dr. Russell Andrews'
use of the expression that the tubal ovum developed *outside the
lumen of the tube.*   This appeared to him to be a clumsy and
bizarre expression, and it did not in any way add to the accuracy
of our conception of tubal pregnancy.   Since Peters had shown
that the uterine ovum buried itself in the decidua and developed
there, it would be equally accurate to speak of the uterine ovum
as developing outside the cavity of the uterus, but no one pro-
posed to do so.   He thought the point Dr. Andrews should try to
emphasize was, that he regarded tubal implantation as intra-
muscular, and uterine implantation as intra-decidual.

Dr. Cuthbert Lockyer showed a case of incomplete tubal
abortion, which demonstrated the mode of implantation of the
ovum in the wall of the tube.   The specimen illustrated very clear-
ly one of the most important points of Dr. Russell Andrews' paper,
viz.: that the manner in which the impregnated ovum burrows by
means of its trophoblast through the mucosa and into the muscle
of the tube wall, and there develops outside the lumen, is strictly
analogous to what normally takes place in the uterus, as proved
by Peters' specimen of early uterine pregnancy.   Peters showed
the fallacy of the older ideas regarding the mode of formation of
decidua reflexa, in which the ovum was regarded as a passive cell,
which acquired a covering of decidua by the latter growing up on
all sides to enclose it.   Peters proved that the ovum by means of

its trophoblast penetrated the endometrium, and Dr. Lockyer's specimen proved that the same process takes place in the tube when the impregnated ovum lodges in that structure. The value of this specimen lay in the fact that the capsularis of the placenta was complete, and this, Dr. Lockyer believes, affords a hitherto unique observation. It negatives the view of Couvelaire, that one pole of the ovum remains uncovered by a capsule derived from the wall of the tube. Couvelaire's researches were carried out on material derived from older specimens of tubal pregnancy than the one exhibited by Dr. Lockyer. In the latter the placenta had a diameter of half a centimeter only, and although hemorrhage had taken place in the placenta tissues, no blood had escaped into the lumen of the tube, consequently the placental capsule, which projected into the lumen, was uninjured by mechanical pressure, and as a consequence, its microscopical structures were easily demonstrated. The sections were illustrated by colored drawings.

MR. TARGETT had examined four cases of very early rupture of a gestation sac in the isthmus or narrowest part of the tube. In one of these cases, rupture occurred on the seventeenth day after a single coitus (rape). They all showed extensive destruction of the muscular coat by the phagocytic action of the fetal epithelium, and ultimate rupture of the serous membrane.

He also examined a considerable number of ampullary gestations, most of which were tubal moles, and in none of them was there anything at all comparable to a uterine decidua, either beneath or around the ovum.

He doubted whether the muscular coat would be penetrated so early in the ampullary gestation, as in that of the isthmus, because in the former situation the ovum had much more room to expand.

DR. RUSSELL ANDREWS, in reply, thanked the Fellows for the way in which they had received the paper.

He had not had access to Couvelaire's monograph while writing his paper, but had read it since.

He did not consider that what might be called the German theory of the formation of the "capsularis" was disproved by Couvelaire's description of the membrane covering the "free pole" of the ovum. He had seen serial sections which proved the presence of muscle in the "capsularis." He quite admitted that in the majority of specimens it was impossible to demonstrate a perfect "capsularis," because the majority of specimens were spoilt by bleeding. He considered Dr. Cuthbert Lockyer's specimen an exceedingly interesting one, as showing a thin layer of muscle between the ovum and the lumen of the tube.

DR. W. H. B. BROOK (Lincoln) showed a uterus which he had removed by vaginal hysterectomy for

PRIMARY TUBERCULOSIS OF THE CERVIX.

A microscopical section from the same specimen, showing typical tubercular structure with giant cells, was also exhibited.

The specimen was removed from a married woman, aged fifty, whose mother and one brother had died of phthisis. Since December last she had suffered from backache and leucorrhea. On examination in February a circular ulcer with sharply cut edges and a ragged depressed surface, which did not readily bleed, was found. A portion of this being excised, showed the presence of multinucleated tubercular giant cells. The whole uterus was removed on April 4, the tubes and ovaries, which appeared healthy, being left. The body of the uterus was not affected, nor was there any evidence of tubercle elsewhere. The patient's husband was a strong, healthy man.

Dr. WILLIAMSON showed a specimen of

EMBOLISM OF THE PULMONARY ARTERY

occurring twenty-four days after delivery. Eight days after delivery the uterus was explored, on account of symptoms of septic infection, and a small piece of retained placenta removed. The patient made a good recovery, and was discharged from hospital sixteen days later. On her way home, however, she suddenly became unconscious, and died in a few minutes.

At the post-mortem a large embolus, completely plugging the pulmonary artery, was found. The right uterine and internal iliac veins were also thrombosed.

REVIEWS.

OBSTETRICS. A Text-Book for the Use of Students and Practitioners. By J. WHITREDGE WILLIAMS, Professor of Obstetrics, Johns Hopkins University, etc. Pp. 845. With 8 colored plates and 630 illustrations in the text. New York and London. D. Appleton & Co.: 1903.

The author's dedication of his work to William H. Welch and William T. Councilman is an index of the qualities which he has endeavored to impress upon it—thoroughness, scientific accuracy and originality. A partial biography follows each chapter. Apparently for the purpose of grouping various pathological conditions, the writer places the section on obstetric surgery in an earlier portion of the book than that on the pathology of labor, thereby discussing the treatment of pathological conditions before describing them. Throughout the work, and especially in the anatomical portion, histological and pathological features are emphasized. Particular attention is devoted to the anatomy of the generative organs and to the development of the ovum and fetus, these being amply illustrated. The author adheres to the nomenclature of positions which requires the insertion of the word iliac in each case. It would seem preferable to have adopted the modern terms, such as left occipito-anterior, with a view to uniformity

rather than to insist upon such a technical detail. A large number
of diagrams and illustrations facilitate the comprehension of the
mechanism of labor in the various portions and presentations.
The treatment advised is usually conservative. That for protec-
tion of the perineum as illustrated is apparently too much so. It
is almost impossible to understand how sufficient force can be ap-
plied in the manner shown to prevent sudden expulsion of the
head. In the after-treatment of the perineum he is distinctly
radical, advising immediate suture of even slight tears through
the fourchette. He opposes a tight post-partum abdominal binder
as useless and at times causing retroversion or retroflexion. For
dilatation of the cervix he favors the Champetier de Ribes balloon
but fails to give any idea of the fact that this is constructed in
a series of sizes to be used consecutively. He describes one size
only. He favors the cephalic application of forceps in nearly all
cases, reserving the pelvic for high forceps only. His indications
for symphyseotomy are extremely limited. Personally he does
not expect to employ it. The brevity of the list of remedies for
vomiting in pregnancy is in refreshing contrast to that of many
other works. The chapters on extra-uterine pregnancy and
eclampsia are excellent. Like other works in which the writer
is permitted a free expression of his own views this volume con-
tains statements and advice which seem open to criticism, but
considered as a whole it would be unjust to criticize unfavorably
a work which exhibits such careful preparation and such scholarly
study. It is written in an easy and entertaining style; the illus-
trations are excellent. The typographical work and make-up are
beyond reproach. The labor which its author has bestowed upon
it places it in the same class as Osler's Practice of Medicine and
makes it worthy of a corresponding success.

UTERINE AND TUBAL GESTATION. A Study of the Embedding
and Development of the Human Ovum, the Early Growth of
the Embryo, and the Development of the Syncytium and Pla-
cental Gland. By SAMUEL WYLLIS BANDLER, M.D., Instructor
in Gynecology, N. Y. Post-Graduate Medical School. Pp. 159.
Illustrated by 93 drawings. New York: William Wood & Co.,
1903.

The scope of this work is sufficiently shown by its title page.
It is largely a reprint of a series of papers which have been pub-
lished in this JOURNAL, with certain additions to make the subject
more complete. In addition to a consideration of the opinions of
others it contains an expression of the writer's personal views of
the formation of chorionic villi and of the blood-forming func-
tion of the trophoblast.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Dis-
coveries, and Improvements in the Medical and Surgical Sci-
ences. Edited by HOBART AMORY HARE, M.D., assisted by H.

R. M. LANDIS, M.D. Vol. II., June, 1903. Surgery of the Abdomen, Including Hernia; Gynecology; Diseases of the Blood and Ductless Glands; the Hemorrhagic Diseases: Metabolic Diseases; Ophthalmology. Pp. 437. Lea Brothers & Co., Philadelphia and New York: 1903.

The current number of this standard review of medical progress is one which will appeal particularly to the readers of this JOURNAL, more than half of the volume being devoted to gynecology and abdominal surgery. The former subject is treated by John G. Clark of Philadelphia, the latter by William B. Coley of New York, both of whom are prominently identified with these branches and both of whom are former contributors to the publication.

FIRST PRINCIPLES OF OTOLOGY. A Text-Book for Medical Students. By ALBERT H. BUCK, M.D., Clinical Professor of the Diseases of the Ear, College of Physicians and Surgeons, Columbia University, New York, etc. Second Edition. Pp. 216. New York: William Wood & Company: 1903.

The earlier edition of this work was published for the use of the author's students. It has been found to supply a want of graduates in general practice as well, giving a more concise presentation of the subject of diseases of the ear than the larger text-books. The newer edition shows slight revision. It covers the ground with sufficient thoroughness for all except the specialist.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Cancer of the Rectum Complicating Pregnancy and Labor. —A. W. Russell (*Scot. Med. and Surg. Jour., June*) reports a case of carcinoma of the rectum in a woman only twenty-seven years of age and pregnant for the sixth time. As the rectal growth was extensive an abdominal hysterectomy was first done. The tumor thus exposed was seen to have infiltrated adjacent structures, so only a left inguinal colostomy was performed. Study of the recorded cases, which are tabulated by the writer, has led to the following conclusions: (1) Rectal discharge and induration of tissues should always be suspected and at once investigated; (2) if cancer of the rectum is discovered early, is still limited in extent, and pregnancy is not far advanced, immediate radical treatment should be considered, though probably the emptying of the uterus should be a preliminary owing to the greater risk of hemorrhage in the gravid state and the danger of abortion; (3) in advanced pregnancy with a small circumscribed growth, the uterus should be emptied before removal of the growth; (4) in advanced pregnancy with living viable child, where there is doubt before opening the abdomen, Cesarean section and hysterectomy

should be performed, and if the case is favorable and the patient can stand it, an inguinal colotomy should follow and the diseased rectum should be detached from above so as to allow the operation to be easily completed by the vagina; (5) when, on the other hand, the disease is found to be beyond radical treatment, the child should be saved by Cesarean section or hysterectomy, with or without colotomy as may be necessary; (6) if the child is dead and the cancer is beyond operation, Cesarean section is still likely to be needed unless labor can be accomplished *per vaginam* easily and without undue crushing or laceration, with the help of perforation, embryotomy or version.

Interstitial Gestation Complicating Uterine Pregnancy.— A woman seen by J. B. Morrison (*N. Y. Med. Jour.*, June 27) had just expelled from the uterus a fetus of eight weeks. Examination showed an ovoid mass on the right of and continuous with an enlarged uterus. The patient disappeared for two weeks, then returned with a foul vaginal discharge and history of a chill. After removal by the curette of shreds of decidua, there were two severe chills, an irregular temperature, and intense pain in the region of the right appendages. The symptoms resembled those of septic peritonitis. On the fourth day there was profuse uterine hemorrhage, the mass on the right of the uterus was half its previous size. During this examination a fetus of ten or twelve weeks was expelled into the vagina. The retained placenta was found adherent in a cavity communicating with the right side of the uterine cavity. The placenta was removed digitally, and in fragments by douches later. This was apparently an interstitial pregnancy, the internal wall weakened by the curettage, and ruptured by internal pressure as the fetus developed, and by uterine contractions following the curettage and hot douches.

Chorea Gravidarum.—J. B. Hellier (*Lancet*, June 20) reports a case of chorea gravidarum occurring during the second pregnancy of a woman twenty-three years of age, who had previously suffered from rheumatism. The attack began at about the fifteenth week and abortion was induced six weeks later as the motions had become violent and medical treatment caused no improvement. Within eleven days after delivery the movements had nearly ceased, and complete recovery followed.

Course of Diseases During Pregnancy.—In answer to the question whether pregnancy alone can be the cause of permanent heart disease, E. Costelli (*Amer. Med.*, Mar. 28) states his belief that the valvular lesions detected in women who have had three or more pregnancies and whose histories do not show any special diatheses are usually relative insufficiency of the valves, resulting from cardiac hypertrophy, which is caused by the hydremic plethora of pregnancy. The treatment is chiefly rest, substituting massage for exercise. Existing cardiac diseases are rendered more serious by pregnancy and frequently lead to abortion. If full term is reached the chief danger is from severe uterine hemorrhage during or after labor. Recognizing the fact that a woman

with cardiac disease, if bent on marrying, will usually carry out her intention in spite of advice to the contrary, Costelli says that theoretically he would feel more inclined to allow marriage to a woman with aortic than to one with mitral lesions. As she will usually persist in consulting different physicians, however, until one is found who will sanction the step, he would usually set before such a woman the dangers of marriage and prescribe a suitable program of life, cautioning her, if necessary, against child-bearing. During pregnancy the treatment of cardiac disease is usually medical, remembering the tendency to congestion which may be relieved by bleeding. If the mother's life is endangered, abortion or premature labor should be induced. If she dies toward the end of pregnancy and the fetus is alive, Cesarean section is indicated. During labor cardiac stimulants should be employed, and if the patient's condition becomes serious labor should be hastened by rapid dilatation and accouchement forcé. As varicose veins of the lower extremities tend to disappear after delivery it is only necessary during pregnancy to avoid long standing and the use of garters, unless complications occur. The attendant should always examine a woman for varicose veins of the cervix. Dangerous hemorrhages from this cause may be avoided by pressure before, or ligature after, delivery. Varicose veins of the vagina may result in severe bleeding when ruptured by coitus during pregnancy or by the fetus during labor. A common cause of rupture of varicosities of the vulva is frequent scratching on account of the pruritus which they cause. Varicose veins of the anus and rectum should be treated by the use of enemas to avoid straining at stool, and by slight massage in a warm bath.

Resisting Power of Animals to Infection and Intoxication During Pregnancy and the Puerperium.—By inoculation of rabbits and guinea-pigs with various bacteria, Bossi (*Arch. f. Gyn.*, Bd. 68, H. 2), discovered that this proved fatal in the pregnant far more often than in the non-pregnant state. This susceptibility appears to increase with the advance of pregnancy. Abortion often followed the inoculation. Opposite results were obtained with the diphtheria bacillus to which the power of resistance of pregnant animals is greater than that of non-pregnant. The writer could see no difference in the results of inoculating non-pregnant animals and those in the puerperium. In pregnancy complicated with an infectious disease an early abortion is called for. In cases of tuberculosis the resisting power of the patient must be estimated, and if apparently insufficient, pregnancy should be artificially interrupted.

Labor Complicated by Extensive Varicosities.—The seriousness of extensive varicosities of the vulva and vagina as a complication of labor is emphasized by M. Dützmann (*Monatschr. f. Geb. u. Gyn.*, Bd. xvii., H. 3). He reports five such cases. In two of these good results were obtained by simple rest in bed. In one, ergotin administered two or three times daily seemed effectual. This should, however, be employed cautiously,

especially toward the end of pregnancy, as it may cause abortion. At the time of labor the chief point is to conduct delivery slowly, avoiding bearing down by the woman through the use of an anesthetic if necessary. Careful suture is the only treatment if rupture of a varix occurs.

Cesarean Section After Death.—Weisswange (*Zent. f. Gyn.,* No. 10), records a case of Cesarean section nineteen minutes after death of the mother from spontaneous rupture of the aorta close to the heart. The child was saved after artificial respiration.

Operative Treatment of Rupture of the Uterus.—N. Kolomenkin (*Monatschr. f. Geb. u. Gyn.,* Bd. xvii., H. 3 and 4). reports five cases of rupture of the uterus successfully treated, three by total abdominal hysterectomy, one by total vaginal hysterectomy, and one by the Porro operation. The dangers in these cases are sepsis and more especially hemorrhage. The latter may occur from an imperfectly contracted placental site, particularly with incomplete separation of the placenta, but most often is from the tear in the uterus and adjacent structures. In four of the cases reported the hemorrhage occurred chiefly from the broad ligament. Even without peritoneal injury these tears of the parametrium may give rise to enormous hematomata. When this takes place the danger from loss of blood is as great in incomplete rupture of the uterus as in complete. Primary bleeding is not usually fatal. The great danger is that of a secondary hemorrhage, especially from the broad ligament. This is often brought on by delivery by the natural route. Infection of the ruptured uterus is the rule rather than the exception. Treatment must stop the primary and prevent the secondary hemorrhage, and also deal with actual and latent infection. All bleeding vessels must be ligated; and the infected wound, or better, the infected organ, must be removed and the region drained. These indications are best fulfilled by total abdominal hysterectomy with vaginal drainage. In cases of decided intrauterine sepsis total abdomino-vaginal extirpation of that organ possesses the additional advantage of avoiding general infection, while permitting hemostasis as well as the former operation. The Porro operation is sufficient to deal with the hemorrhage only in certain cases and is unsatisfactory in relation to asepsis. Subtotal abdominal hysterectomy also possesses this disadvantage in regard to sepsis, though controlling hemorrhage. Total vaginal hysterectomy, while efficient in dealing with infection, does not assure hemostasis, particularly in the parametrium. Laparotomy and suture of the wound arrests bleeding, but is more dangerous than other operations in regard to infection. All these procedures have, however, occasional indications.

Rupture of the Uterus.—Nutting Fraser (*Med. News,* June 27) describes a case of complete rupture of the uterus caused by the ignorant woman attendant, who passed her entire hand into the vagina and, hooking her fingers into the cervix, tore

it off from the uterus posteriorly. The dead child was removed by version, and recovery followed hysterectomy.

Management of Labor in Contracted Pelvis.—A. von Magnus (*Monatschr. f. Geb. u. Gyn.*, Bd. xvii., H. 2 and 3), has studied the histories of 874 cases of labor in cases of contracted pelvis in the Königsberg Clinic. They were nearly all flat or justo-minor pelves, and in all the conjugate was under 9.8 cm., but in only thirty-three under 8 cm. In 80 per cent. delivery was spontaneous. There were eight forceps extractions, thirty craniotomies, eighty-eight versions and extractions. The statistical study of the results has led him to the following conclusions in regard to the treatment of cases of contracted pelvis : In primiparæ with slight or moderate contraction spontaneous delivery is to be expected. If an indication for terminating labor arises when the head is fixed at the inlet high forceps should be applied. If ten or twelve tractions are ineffectual, perforation should be performed unless the mother is very anxious to save the child, when symphyseotomy should be substituted. Should the head, however, be freely movable above the brim an effort should be made to cause it to engage by pressing it downward from above while the patient is in the so-called Walcher position. If this is unsuccessful, version and extraction are called for, with perforation as a last resort. In multiparæ with a conjugate between 9.75 and 8 cm. spontaneous delivery occurs in over three-quarters of the cases, hence this should be awaited. If, after dilatation of the cervix, the head shows no tendency to become engaged, version and extraction should be performed. In general this should not be delayed over ten hours after rupture of the membranes, but the operator must be guided by the character of the pains and distention of the lower uterine segment. If the head is fixed at the inlet high forceps should be tried cautiously before proceeding to perforation. For multiparæ with a true conjugate of 7.9 to 7 cm. induction of premature labor at the thirty-fifth to the thirty-seventh week is advisable. At the end of pregnancy if spontaneous delivery is impossible, perforation is indicated, or symphyseotomy or Cesarean section if a living child is urgently desired.

Prevention and Treatment by Hospital Methods of Puerperal Sepsis in Private Practice.—The chief points mentioned in a paper by W. S. Stone (*N. Y. Med. Jour.*, June 27) upon this subject are as follows : Asepsis is the principal of obstetrical technique. It is to be attained by (1) the use of no antepartum douches unless it is necessary to protect the baby's eyes from a purulent vaginal discharge; (2) sterilization of the external genitals and the attendant's hands; (3) no postpartum douches unless especially indicated. Sterile towels are difficult to obtain, but freshly laundered towels dipped in bichloride solution and wrung out dry are good substitutes. A freshly laundered draw sheet and bichloride towels are better than a soiled Kelly pad. Shaving the vulva is as important as in other vaginal operations. The writer believes that antiseptics are not in contact with the external

genitals long enough to make them sterile. They are useful, however, in sterilizing water. Separation and eversion of the labia before introducing the examining fingers is important. After delivery the external genitals should be washed frequently by a nurse with hands sterilized as for an operation. Total abstinence from postpartum douches is essential, except immediately after labor, to remove clots, to promote comfort, to prevent hemorrhage or after pains, or for other special indications. Sterilization of the attendant's hands is the most important feature. The use of rubber gloves is advised, especially for those engaged in general work. If fever appears after labor, the breasts and constipation being excluded, a systematic examination of the genitals should be made, beginning with the perineum, then wiping away vaginal discharges and inspecting the vagina and cervix. Aseptic treatment of any wounds in these regions by irrigation with normal salt solution is usually efficient. Having ruled out these organs the interior of the uterus is examined with the fingers while pressing the fundus down firmly. A bacteriological examination of the interior of the uterus should be made. Putrid remains of gestation products should be removed digitally or with the aid of sponge forceps. The rough placental site must not be mistaken for retained decidua. The uterus is then irrigated with hot saline solution. The writer protests against the use of antiseptic douches continuously or at frequent and regular intervals in these cases, as septic endometritis causing necrosis and a purulent discharge is rare. Ergot given frequently is more certain in maintaining uterine contraction. If cellulitis or peritonitis is present an icebag is applied to the abdomen, and later prolonged hot vaginal douches are given to aid absorption of the exudate. If an abscess is present it is opened in the most accessible region. Hysterectomy is rarely required.

GYNECOLOGY AND ABDOMINAL SURGERY.

Tumor of Abnormally Situated Ovary.—A. Bluhm (*Arch. f. Gyn.*, Bd. 68, H. 2), describes an operation for what was supposed to be a tumor of the left kidney. The mass removed was found to be just below the kidney and it proved to be a sarcoma of the undescended left ovary. Bluhm supposes the abnormal situation of this organ to have been due to peritonitis in fetal life.

Mycosis Vaginæ.—This affection has met with scanty recognition in American text-books. For this reason a case is reported by Smith and Radkey (*Med. News*, June 27). The patient was twenty-six years old. Her first pregnancy terminated in a miscarriage. Menstruation returned next month, unusually profuse. After curettage it became normal, but during the intervals there was leucorrhea, which was treated with douches of boric acid and lysol solutions. Nine months after the curettage she again became pregnant and the leucorrhea became profuse and with intense vulvar burning and pruritus. Examination showed follicular vulvitis; relieved by treatment. A few days later the symptoms returned, with pain, burning and itching in the vagina,

and the discharge became thick, viscid and dirty brownish. One week later she noticed many small, dark, granular and mucoid particles in the discharge. A mass of bloodstained material was found hanging from the vulva; there was a follicular vaginitis and also many grayish-brown, slightly elevated masses, separated by normal vaginal mucosa. The mucous membrane from which they were removed was raw and swollen. The patches were picked off with forceps and a vaginal douche of boric acid given and later one of bichloride. An abortion took place. Within two weeks all vaginal symptoms had disappeared and had not recurred five weeks later. The urine contained no sugar. Microscopic examination of the masses on the vaginal wall showed them to contain mycelial threads and conidia of Oidium albicans.

Treatment of Malignant Disease of the Uterus.—G. E. Shoemaker (*Amer. Med.*, June 20) holds that the present tone of pessimism regarding the results of operative treatment of uterine cancer is unjustified and only the outcome of the tendency of medical opinion to run in waves. As a favorable result implies an early diagnosis the classical symptoms, emaciation, cachexia, severe lancinating pain, discharge with odor of decomposition, severe and continuous hemorrhage, cannot be waited for. It must be appreciated that any average loss of blood continuing for several months, near the menopause or not, which is greater than the normal average of that individual, judged by her earlier life, is pathological and calls for rigid explanation. The keynote of the whole subject is microscopical examination. Much may be done in the way of prevention by repairing serious injuries to the cervix and curetting hypertrophied glandular tissue, repeatedly if necessary, as a benign adenoma may become malignant in places.

All cases are suitable for hysterectomy and complete removal of broad ligaments, tubes and ovaries, as much cellular tissue as is possible about the uterine attachments, and a portion of the upper vagina, when the disease is apparently confined to the parts mentioned. When the broad ligaments are evidently infiltrated out to the pelvic wall, thereby restricting the movements of the uterus, the prognosis is not so good as to return, but the operation should still be undertaken if the diseased tissue can all be removed. The actual cautery should be deeply and thoroughly applied to all accessible parts of the growth before instrumental traumatism is produced. The vaginal attachments also should be seared by the cautery, and as much of the other structures as the proximity of bladder, ureters and rectum will admit. This preliminary use of the cautery is insisted upon because in the writer's experience those cases have shown the longest immunity from recurrence under otherwise unfavorable circumstances in which this was carried out, and because the whole trend of surgical experience in combating cancer shows that the cautery is the most effective weapon against the disease. The writer begins by cauterizing thoroughly all cancerous tissue which can be reached through the vagina, and then opening the abdomen and completing the operation from above, using the cautery as much as pos-

sible. Attempted radical operation confined within the limits of cancerous growth is harmful rather than beneficial to the patient. This does not apply, however, to the removal by the cautery of soft fungating, readily bleeding or sloughing masses from the cervix. This gives great temporary relief from pain, hemorrhage, and sepsis, and as it is not attended by shock or danger it may be repeated. For advanced sloughing growths Shoemaker advises strong solutions of potassium permanganate, and of formaldehyde one in ten applied occasionally, in order to lessen the progress of superficial tumors.

Uterine Fibroid After the Menopause.—J. Bland-Sutton (*Lancet,* June 6) states that uterine fibroids arise only during menstrual life, between fifteen and forty-five. They usually cease to grow after the menopause and may rarely shrink after that time. The chief dangers after this period are partial extension from the uterine cavity leading to local infection, necrosis, and cancerous degeneration.

Complete Nephro-ureterectomy.—J. W. Bovée (*Wash. Med. Annals,* Vol. II., No. 2) puts on record his second operation for removal of the kidney and ureter at the same sitting. An incision was made through the anterior vaginal wall to the ureter, which was loosened to its entrance into the broad ligament and was ligated next to the bladder and severed. Then through a loin incision about five inches long, running from the end of the false ribs toward the right anterior superior spinous process, the kidney and the ureter were separated to the brim of the pelvis, where the latter broke on slight traction and pus escaped from the upper end. Vessels clamped, severed and tied, removing kidney and upper portion of ureter; then the remainder of the ureter dissected from above. In seventeen cases tabulated by the writer, the indication for the operation was tuberculosis of the kidney and ureter in 82 per cent. Complete nephro-ureterectomy has been done by the extraperitoneal and transperitoneal routes. The preponderance of cases of tuberculosis of the organs involved makes it desirable to avoid contaminating the peritoneum, though the latter route is the less difficult. Bovée recommends beginning the operation by the vaginal incision. The incision for nephrectomy will then usually suffice for its completion. The kidney and ureter should be removed en masse when possible, liberating the former first and avoiding contamination of normal structures by leakage from the cut end of the ureter. Drainage, including vaginal, should be employed whether pus is present or not. Of the seventeen cases compiled but two ended fatally.

Movable Kidney.—The lessons drawn from a number of case reports of movable kidney by T. E. Gordon (*Lancet,* June 6) are: that in neurasthenic cases nephropexy may do good; vomiting and other gastric symptoms can certainly be cured, but if dilatation of the stomach is present a guarded prognosis must be given. On the other hand a hysterical woman with a movable kidney but no symptoms referable to it should not even be informed of her

condition. One should be most cautious in concluding that a movable kidney is a cause of obscure abdominal symptoms. Movable kidney occasionally causes symptoms which exactly simulate those due to gall-stones, but seeing that the coincidence of movable kidney and gallstones is not uncommon it would be unwise merely to fix the kidney without a preliminary examination of the gall-bladder and ducts. While granting that most cases of movable kidney cause no symptoms and therefore require no operation, there remain many which do cause symptoms and in a fair proportion of these an excellent result from nephropexy may confidently be anticipated.

Toilet of the Peritoneum in Appendicitis.—According to G. R. Fowler (*Amer. Med.*, June 20) the following indications are to be met after operations for appendicitis: (1) In cases in which the infection is confined to the appendix the surrounding peritoneum should be carefully guarded against infection from the opening left in the cecum by the excision of the organ; (2) when suppurative collections are present the cavity of the peritoneum should be guarded by gauze pads wet with 1-2,000 sublimate solution, before breaking down limiting adhesions in approaching the appendix; (3) as soon as a pus cavity is opened the septic material should be rapidly sponged away and the neighborhood cleansed with hydrogen dioxid. Following this the appendix should be removed, after which the parts are subjected to a second cleansing process; (4) outlying infection of the peritoneum may, as a rule, be left to take care of itself after the removal of the appendix and local cleansing; (5) in peritonitis more or less generalized in the pelvic and enteronic areas the method of procedure will depend upon the presence or absence of markedly septic seropurulent material. When the latter is present it should be carefully sponged away. If only thin and slightly turbid this will usually suffice. If it is more decidedly purulent, and particularly if flakes of grayish, slate-colored lymph are floating about in it, providing the patient's condition will permit, the infected area may be forcibly flushed with saline solution and drained from the direction of the pelvis, the force of gravity being utilized in the after-treatment to encourage the flow of septic fluids from the enteronic to the pelvic area; (6) in diffuse septic peritonitis the conditions are usually such as to prohibit prolonged interference, and the surgeon will, in the majority of cases, be justified in interference only to the extent of removing the appendix and cleansing locally. In selected cases flushing the peritoneal cavity has advantages. The elevated head and trunk position should be employed in the after-treatment whenever possible. Favorable results from eventration can only rarely be claimed legitimately. So-called "scouring" of the peritoneal surfaces for the removal of plastic lymph is most unsurgical; (7) drainage, when instituted, should be by glass or smooth rubber tubes. Massive gauze packing or multiple and radiating gauze strips placed between the intestinal

coils is probably never of real service, and may be productive of harm.

Removable Deep Suture.—In a suture devised and employed by F. R. S. Milton (*Lancet*, June 6) the principle of the sewing machine lockstitch is employed in order to facilitate its removal. One thread is of silk, the other of silkworm-gut sufficiently rigid not to kink and be drawn into the holes in the tissue made by the other thread. As applied to suture of the peritoneum after laparotomy the method is as follows : A mounted needle with an eye near the point, through which is threaded a long piece of silk, with the long end of the thread on the upper side of the needle when held as it will be when piercing the tissue, is passed from the operator through both layers of the peritoneum, beginning at the lower angle of the wound. The needle is then withdrawn, leaving a loop of silk protruding through the layers of peritoneum on the side of the assistant ; through this loop the assistant passes the end of the silkworm-gut, from below upwards, and the loop is withdrawn flush with the assistant's side of the united flaps. The needle, not having been unthreaded, is again thrust through the flaps for the second stitch and again withdrawn, leaving a loop ; the silkworm-gut is threaded through this second loop and the process is repeated till the whole of the flaps are united. The needle is next unthreaded, leaving a fairly long end to the silk. There will be now on the face of the wound, on the side of the surgeon, the two ends of silk, and on the side of the assistant the silkworm-gut thread passing through the silk loops and also with long ends. The silkworm-gut thread should now be put on the stretch and pulled gently backwards and forwards to see that it is nowhere kinked and that it can be withdrawn. The two silk and two silkworm-gut ends are in turn threaded on an ordinary needle and made to pierce the skin each on its own side of the wound, and are left thus whilst the wound in the abdominal wall is sutured in the ordinary way. This having been done the two lower ends of the peritoneal suture, one of silk and the other of silkworm-gut, are then tied together and cut to a convenient length. The same is done with the two ends at the upper end of the wound. When it is required to remove the deep stitch, after the wound is healed, the lower united stitches on the silk side of the knot are cut, and the upper stitch on the gut side of the knot, or *vice versa*, and the silkworm-gut stitch, and then the silk stitch can be pulled out with equal facility.

DISEASES OF CHILDREN.

Antidiphtherine, a New Remedy of Local Application.—M. Aramian (*Jour. de Méd. de Paris*, June 28) while experimenting with the Loeffler bacillus discovered this preparation, which destroys the germ when applied locally. He does not deny that the serum has done much good, but as he does not believe that the bacillus enters the blood or the internal organs, he considers it

illogical to attack the toxins of these bacilli by a poison rather than to attack the organisms themselves. It is a fact that the serum, valuable as it is, has been responsible for eruptions, albuminuria, arthralgias, etc., and has even caused death when given as a preventive. Even when children are cured of diphtheria by means of the serum, they remain delicate for a long time, and are predisposed to serious complications if attacked by any disease. The local application of antidiphtherine causes a cure in from two to three days (whether serum has been administered or not), the bacilli and false membranes completely disappearing. The remedy is not caustic nor irritating; it is applied by means of a brush from three to six times a day, to throat, larynx or nasal forsæ. It has no direct action on other bacteria than the Loeffler, but they gradually disappear with the destruction of the latter. If treatment is begun late, after toxin has accumulated and caused secondary troubles, as paralysis, nephritis, engorgement of the ganglia, etc., these accidents are arrested in their development and disappear. If the remedy be applied early they do not appear at all. It may be used as a preventive—that is to say, a healthy child exposed to the contagion should have its throat swabbed once a day with it. The author intends to give the formula of his antidiphtherine to the Academy of Medicine at an early date.

Chronic Hypertrophy of the Spleen in Early Hereditary Syphilis.—A. B. Marfan (*Rev. Fran. de Méd. et de Chir.*, June 15) reaches the following conclusions: (1) In a nursing infant the spleen should not be considered hypertrophied, unless it is distinctly felt by palpation below the false ribs, and unless we can exclude its displacement in rachitis or from pleuritic effusion: (2) in the early years of life, syphilis is the most frequent cause of chronic hypertrophy of the spleen. It is usually accompanied by anemia, of greater or less gravity, and by a certain amount of hypertrophy of the liver and polyadenia. In some cases, however, the only symptom is the splenomegaly; (3) the existence of a hypertrophied spleen in a nursing infant is of great diagnostic value in hereditary syphilis. The co-existence of splenomegaly and rachitis does not exclude syphilis.

The Complications and Sequelæ of Pertussis.—W. G. Aitchison Robertson (*Scot. Med. & Surg. Jour.*, June) states that pertussis ranks third amongst the fatal diseases of children in England, and of the deaths due to it three-fourths occur in children under two years of age. The complications or after-consequences of pertussis are so numerous and so prone to affect very young children that the disease ought always to be considered as one of the most dangerous of infant troubles. These complications are the following: *Respiratory system*—Certain lesions are what may be termed normally present in the lungs, as catarrhal inflammation of the mucous lining of trachea, bronchi and bronchioles. The congestion may become aggravated, and lead to serious troubles, of which capillary bronchitis or catarrhal bronchopneumonia are the most dreaded. The liability to these extensions

is greatest in cold weather, and is proportionately greater the younger the child. Ordinary lobar pneumonia may be the complication in children of an older age. Emphysema though almost invariably present to a slight degree, is confined as a rule to the alveoli. It may, however, become interstitial as a result of rupture of the air cells. Pneumothorax may occur from rupture of the distended alveoli through the pulmonary pleura. True spasmodic asthma sometimes supervenes on an attack of pertussis. On the other hand the permanent dilatation of the bronchi and the weakened condition of their mucous lining may lead to frequent attacks of bronchial catarrh, or may even be one of the causes of chronic bronchitis in early life. Bronchiectasis may also be present. Phthisis pulmonalis often carries off young patients who have only recently recovered from pertussis. A fatal case of edema glottidis occurring during pertussis has been recorded, and spasmodic croup is often associated with whooping cough, and often causes death. The complications affecting the *nervous system* are chiefly convulsions. It is probable that they are due to the degree of nerve irritability induced by the action of the specific toxins on the nerve cells of the motor cortex. When the convulsions are excessively severe, or more or less continuous, then the irritation of a meningeal or even cerebral hemorrhage is more likely to be the exciting cause. Paralysis is by no means rare; the author considers it due to the toxemia which leads to a rupture of either meningeal or cerebral blood vessels. *Digestive system*—Vomiting of food is almost always present. The child may die from the exhaustion induced, or the resulting debility may predispose it to other diseases. Catarrhal enteritis or colitis may be present, especially in warm weather. *Circulatory system*—The excessive and long continued expiratory efforts must necessarily increase the intra-vascular tension to a high degree, and must consequently have an injurious effect on the heart. Dilatation of the heart tends to follow, if its muscular tonicity be at all reduced, or if the myocardium shows any tendency to fatty degeneration. That the latter condition arises in severe or long-continued cases of pertussis is well known. Osler goes to the length of stating that pertussis may lead to heart disease in later life. *Urinary system*—Albumin is very frequently present in the urine of children suffering from pertussis, but is seldom large. Blood and hyaline casts are sometimes found. Eclampsia has been described as occurring in pertussis. *Ocular complications*—Sub-conjunctival hemorrhages are frequent, and are usually confined to one eye. Transient loss of vision is a frequent complication. Strabismus may be present only during the spasms of coughing, but may recur with each paroxysm. It may remain permanently. *Auditory apparatus*—The membrana tympani may be ruptured as a result of an excessively violent cough, and extensive hemorrhage from the ear may be a consequence. Otorrhea and permanent deafness may follow. An unusual complication of pertussis is recorded by Peck; this was an extensive gangrene of the ear and face,

which occurred in an infant one year old, and which proved fatal. *The blood*—Cases are often met with, in which there are hemorrhages either from the mouth, throat, nose or ears. As regards the blood itself, Cima finds that leucocytosis is present in the ordinary cases of pertussis met with. Meunier says that the leucocytosis reaches a high degree, appears early, and precedes the development of the characteristic whoop. It is relatively more intense in younger than in older children. He thinks that its constant occurrence, early appearance and the disproportion which it shows as compared with the condition of the blood in other somewhat similar spasmodic pulmonary affections might allow of an early diagnosis of this infectious disease in schools, industrial homes, etc.

Congenital Heart Disease with Interesting Eye Findings.—Samuel McC. Hamill (*Pediatrics*, May), describes the case of a boy of nine years who has been more or less "blue" since he was a few months old, and has always been dyspneic on exertion. For the past six months the dyspnea has been increasing. On physical examination he was found to be of normal size and well nourished. The skin of his face and body had a dusky blue color; his lips and conjunctivæ, and all of his visible mucous membranes had a deep purplish color. His hands and feet were especially congested, and he showed extreme clubbing of the fingers and toes. His eyeballs were prominent, his anterior nares bloody from recent hemorrhage. The skin of his body was covered with small punctate bluish follicles and was rough and dry. Auscultation of the heart showed at the apex a rather soft, short, blowing, early systolic murmur, which accompanied the first part of a divided first sound. The second pulmonic sound was much accentuated, the heart's action fairly regular and rapid (120 per minute). The condition of cyanosis and dyspnea increased, accompanied by heart pains, and the patient finally died. No autopsy was permitted. The result of an eye examination made ten days before death was as follows: "Eyeballs prominent. Conjunctival vessels, both of the globe and of the lids, swollen, especially the veins, giving the eye a dark purplish appearance. Pupils larger and media clear. The findings of the ophthalmoscope were very striking, and consisted in a neuro-retinitis of marked degree. The retinal arteries and veins were greatly swollen and tortuous. The head of the optic nerve was obscured by the swollen retina, and there were a few small hemorrhages into the nerve fibre layer of the retina close to the disc. The light reflex from the vessels was greatly broadened, that of the veins the more so. The retinal veins appeared to be increased to three times their normal size. The author holds that this remarkable condition was due to the extreme degree of cyanosis from which the patient suffered. As to the diagnosis of the specific lesion in the case, he has been unable to reach any satisfactory conclusion, the data being insufficient.

The Cytological Study of the Cephalo-rachidian Fluid in Some Diseases of Childhood.—Marió Flamini (*Rivista di Clin-*

ica Pediatrica, June) concludes that where there is irritation of the meninges, an examination of the cephalo-rachidian fluid will reveal the presence of a considerable number of leucocytes. In the normal fluid, or in cases of "meningisme" or even in some diseases of the nervous system without meningeal irritation (chorea, tetany, Little's disease), figurate elements are very scanty. In tuberculous meningitis lymphocytes preponderate, but in cases in which the Koch bacillus is found, polynuclears are numerous. The latter are also found in single tubercles on the meninges. The tuberculous bacilli and their proteins exercise a positive chemiotaxic action chiefly on the larger mono- and poly-nuclear leucocytes. The soluble products of the bacillus (toxins) act on lymphocytes. As a rule, meningeal processes may be divided into two classes. In the first the irritation can be traced to toxic substances of various kinds; in the second germs are the active agents. The author is led to believe from the results of his researches that lymphocytes preponderate in the first class and polynuclears in the second. Consequently the value of cytodiagnosis in the differentiation of meningitis of tuberculous origin from that produced by other infective agents loses much of the importance and value which in recent times have been attributed to it.

The Diagnosis of Tuberculous Meningitis and Lumbar Puncture.— M. Variot (*Presse Méd.,* June 10) considers lumbar puncture and a cytological examination of the cephalo-rachidian fluid to be the most valuable and scientific means of diagnosis of tuberculous meningitis, at any period of the disease. The presence of lymphocytes to any marked degree, indicates, in childhood at least, a meningeal reaction due to bacillosis; the predominance of polynuclears, on the other hand, corresponds to other meningeal processes which may be benignant in their outcome, and to various forms of cerebro-spinal meningitis which are more or less curable. As to the method of performing lumbar puncture, the child lies on his side with rounded back. Under antiseptic precautions, a needle carrying a silver thread is pushed into the space between the fourth and fifth lumbar vertebræ, to a depth of two or three centimetres. The needle is held almost perpendicularly to the spinal column, and as the silver thread is withdrawn the fluid comes out drop by drop, or may come as if under pressure. It is sometimes necessary to aspirate it with a Pravaz syringe. Ten to twenty centimetres are withdrawn, and subjected to the action of a Krauss centrifugator. The residue obtained is then slightly diluted with a small amount of the fluid left in the tube, and spread out on slides. After drying in stoves, the preparations are fixed by alcohol-ether and stained with hematin-eosin or Unna's blue, or thionin, or else fixed by heat and colored with Ehrlich's tri-acid. All that now remains to be done is to make the microscopic examination, and determine the character of the figurate elements, if any are present. Normal cephalo-rachidian fluid contains no cellular elements, except an occasional lymphocyte.

Early Diphtheritic Paralysis of the Velum Palati.—R. Romme (*Presse Méd.,* June 13) says that this symptom is now recognized to be of the utmost importance. The statistics given by M. Barbier to the Pediatric Society are most suggestive. In 1902 he observed 38 cases of paralysis of the soft palate, of which 18 appeared before the sixth day, and 20 after the fifth. Of the 18 there were 5 deaths, or a mortality of 28 per cent.; of the 20, 2 deaths only, or a mortality of 10 per cent. A more detailed examination of the statistics shows that when this paralysis appears on the first day (1 case) death ensues; on the second day the mortality is two out of three, and becomes less and less fatal the later it appears. It is of course not the paralysis of the soft palate which causes death, it being merely the prelude to other and more serious symptoms—such as depression and somnolence, vomiting and peripheric collapsus with pallor of face and skin, slowing, or quickening and enfeebling of the pulse, and irregularities in the cardiac rhythm, with a deadening of the sounds or else a "bruit de galop." It is evident that paralysis of the soft palate is of decided importance to prognosis.

An Early Sign of Typhoid Fever in Children.—J. Berrard (*Sem. Méd.,* May 27) says that if in the first week of the disease the right iliac fossa is palpated deeply by the fingers of both hands, there will be felt in the ileo-cecal region a chain of two or three nodes arranged longitudinally. These are not mesenteric glands, but swollen Peyer's patches, and are not perceptible after the seventh day of the disease.

Eosinophilia in a Nursing Infant Whose Mother was Suffering from Tænia Mediocanellata.—Enrico Gagnoni (*Riv. di Clin. Ped.,* May) reports the case of a baby which in every way normal up to the third month then began to exhibit lack of appetite, a slight pallor of the mucosæ, convulsive movements during sleep, restlessness, and somnolence. The symptoms went on increasing in severity, until finally the child gave every sign of cachexia. Examination failed to reveal anything abnormal in any of the functions of the body. An examination of the blood showed a normal number of red and white corpuscles, but decided eosinophilia, the amount being 12 per cent. instead of the normal 1 to 2.5 per cent. The mother was in appearance perfectly healthy, but the author suspected the existence of intestinal parasites, and an examination of the feces demonstrated the presence of proglottides of tænia mediocanellata. The parasite was expelled by means of pelletierine. The eosinophilia in the infant gradually diminished, so that fifteen days after the expulsion of the taenia it was about 2.5 per cent. Its general condition improved at once.

False Relapse of Diphtheria.—R. Romme (*Presse Méd.,* June 13) cites the case of a child suffering from diphtheria who had received a serum injection and was apparently doing well. On the eighth or twelfth day, while apparently convalescent, the child again complained of his throat; it was found to be red, and even covered with white spots. The voice became harsh, there were

dyspnea, tirage and the coughing up of false membranes. A relapse of diphtheria was suspected, and another dose of serum injected, with the best results, and yet this injection was not needed, since, as M. Sevestre tells us, the angina and the croup had really no connection with the diphtheria. They were simply a sequela of the serum exhibited on the mucosa similar to the cutaneous eruptions or the arthralgias which sometimes follow its use. The angina and croup are always accompanied by other sero-therapeutic accidents, and, like these, disappear in from twenty-four to forty-eight hours, without the need of any special treatment.

Gastro-enteritis in Children in 1902.—M. Ley (*Soc. Méd. Chir. d'Anvers,* April) finds that in 1902 there was a marked diminution of cases of this disease in Antwerp, largely owing to the fact that there had been a much cooler summer season than usual. He discusses the cases that occurred, from the point of view of etiology, symptomatology, and treatment. A prolonged water diet he has found of the greatest benefit; it is well tolerated by even debilitated nursing infants. In one case a child weighing 3,950 grammes was attacked by enteritis with very abundant watery stools. After thirty hours of water diet, accompanied by washing of the intestine, it had gained 20 grammes. Organic dehydration is the chief symptom in many cases of enteritis. Unfortunately this form of treatment is difficult of application, it being often impossible to obtain the parents' consent to give their children absolutely no other nourishment than pure water for 24 hours. If the child cries they hasten to give it milk. Yet it is a fact that the water diet has a soothing and calming influence on the children, as a rule. It has been proposed to give albumin water, sugared water and tea as a concession to maternal fears. The first is to be avoided, egg albumin constituting an excellent culture medium for bacteria. A tiny amount of sugar may sometimes have to be added to induce the child to drink at all. Tea forms a suitable method for the administration of water, but has been known to cause insomnia and restlessness in the little patients. The author has frequently prescribed Flor tiliæ, 40 grams, Fol. menth. 10 grams, the first remedy being a sedative, and the mint being added when there are marked colicky pains. Of course, the object of a water diet is to cut off all supply of food to the bacteria, and for that purpose pure water is to be preferred, but as one must be willing to adapt oneself to circumstances, it may be necessary to add dilute infusions of the aromatics. Medicines count for little in the treatment of gastro-enteritis. Calomel may be given, first as a purgative if fetor of the stools, or the presence of milk clots or of undigested food suggests putrefaction of alimentary substances within the intestines, in two doses of 8 to 20 cg. (1 1/6 to 3 1/3 grains) according to the age of the patient, given twenty minutes apart; second, as an antiseptic in 5 or 6 doses of 5 mg. to 1 cg. (1/12 gr. to 1/6 gr.) given at two hour intervals. The latter method of administration is especially bene-

ficial, but should not be used in cases with very abundant watery stools and relaxed abdomen. Lavage of the intestines is an excellent measure. A return to normal diet should be made gradually, the child being given the breast or the bottle three times a day, with water during the intervals. An excellent food and one much used in Holland is buttermilk.

Infant Digestive Disturbances.—A. C. Cotton (*Jour. Amer. Med. Assoc.*, June 13) discusses the symptoms and complications of cholera infantum and of summer diarrhea in infants. He says that perhaps the most important effect of severe summer complaint on the survivors is the feeble resistance to infection from lowered vitality, so that the danger from intercurrent diseases is manifold. The special hygiene for these little convalescents is a subject too frequently dismissed with the doctor at the conclusion of the enteric disorder. It is safe to say that the fatalities of summer diarrheas are seen very rarely among the exclusively breastfed infants. They may starve to death from insufficient or impoverished breast milk, or dying from inherited dyscrasiæ they may show some of the symptoms of chronic indigestion. They may exhibit symptoms of acute or subacute digestive disturbance as a result of palpable errors in hygiene or they may be destroyed by some overwhelming intoxication, presumably due to sudden changes in the constitution of the breast milk, resultant from physical or mental disturbance in the nurse. In none of these instances is the symptom diarrhea essentially a summer diarrhea. Moreover, it is a common observation that the diarrheas of the exclusively breast-fed are usually tractable, regardless of season, in otherwise healthy infants, by the application of the well-known principles of hygiene.

The startling mortality from digestive disorders is confined almost entirely to bottle-fed babies. This fact is so generally established that when pronounced diarrheal symptoms appear in an infant at the breast the first interrogations are directed towards the possibility of the ingestion of other material than breast milk. A careful study of the infant's hygiene, with examination of the dejecta after colonic flushings, frequently disproves the statement that the child's diet included nothing but breast milk. Statistics show that in the fatal cases of summer diarrhea less than 3 per cent. were exclusively breast fed. No clinical phase of this subject begins to rival in importance this one fact, that summer diarrhea, with rare exceptions, means practically summer artificial feeding. In view of our knowledge of summer diarrhea the question of feeding, then, is of paramount importance. A neglect to use every means to secure for the infant natural food can not be atoned for by the most energetic therapy yet devised. Many of the obstacles to natural feeding are insuperable or even formidable only so long as the lay mind is asleep to the fact that his physician knows how to prevent fatal digestive disorders in the infant. When the responsibility for the consignment of a baby to a method of feeding that diminishes his chances of living two-fold more than inocu-

lation with smallpox virus is fully brought home to the physician the difficulties of breast feeding will become proportiontely insignificant. The fact that some governments and municipalities now require on the infant's death certificate a statement as to the method of feeding shows an awakening to the importance of this matter. How long before the same line of inquiry shall require an explanation as to why the infant was subjected to the manifold dangers of artificial feeding? When a tithe of the work that has been expended to cheat the babe and mother out of their mutual rights by the substitution of artificial methods of feeding, shall have been devoted to the problem of lactation, its physiology and its pathology, then will the morbidity and mortality of the suckling cease to be the opprobrium of the medical profession and the Shiga bacillus, with its pathogenic congeners, may be relegated to the background.

Infant Feeding.—Henry E. Tuley (*Jour. Am. Med. Assoc.*, June 13) discusses the every day problems in this subject. These are, as to breast feeding: 1. The increase of a too small supply. 2. Changing the character of the milk (*a*) decreasing the proteids, (*b*) increasing the fat, (*c*) decreasing the fat. 3. To make serviceable nipples out of flat and depressed ones. 4. To supply an artificial or adjuvant food in case of a good but too small supply from the breast. 5. To continue nursing during a suppurating mastitis and retain the integrity of the gland after a subsidence of the inflammation. The every-day problems of an entire artificial feeding are even more difficult of solution than those of breast feeding. It is not possible to have a set rule for guidance in all cases. Cow's milk for most cases is unquestionably best, but we frequently meet with cases in which no formula nor any method of home modification can be made to agree with the child. In the author's opinion none of the artificial foods are suited for long administration to an infant. Sooner or later cow's milk must be given in some form to prevent the nutritional disorders which are certain to follow their long and exclusive administration. Artificial foods with which it is possible to combine milk in some proportion should be chosen. Condensed milk in combination with milk food, or a small percentage of cream can frequently be borne when other foods or combinations have failed. Condensed milk has much to commend it; it is one of the best foods for the poor and ignorant, is usually within their means, is easily kept sterile, and is easily prepared. Its chief advantage lies in the small percentage of fat when the milk is diluted according to directions sufficiently to bring the percentage of proteids within the limits of digestion. Its long continuance results in such nutritional disorders as scorbutus and rachitis, and when the necessity arises for giving another milk it is difficult to change because of the taste acquired for the over-sweet condensed milk. If a cow's milk is to be used, and it should be tried whenever possible, it is necessary for the physician to master the problems of percentage feeding and adopt some method of calculation of the prescription. There are

a number of these by which very satisfactory results can be obtained at home.

Alexander McAlister (*idem*) says that the relative value of recognized methods of feeding infants as esteemed by leading pediatric specialists at home and abroad, in the writer's estimation, may be summed up in the following order: (1) Exclusive breast nursing; (2) mixed feeding, the infant having the advantage of more or less breast milk daily whenever and so long as this is possible; (3) cow's milk modified in the home, water, lime water or a simple demulcent being employed as a diluent; (4) dispensary and commercially pasteurized milk; (5) boiled top milk variously diluted to suit the infant's needs; (6) whole cow's milk modified by admixture of one of the artificial foods; (7) condensed milk and the several cereal and milk foods.

Kidney Tumors.—Léon Imbert (*Gaz. des Hôp.,* May 30) compares tumors of the kidney in adults and in children. In the latter the first symptom is usually the appearance of the tumor itself, and in many cases it remains the only symptom. It may become enormous in size—a weight of 15 kilos (31 lbs.) having been reported in one case. Hematuria is relatively rare; pain is more frequent, having occurred in 18 per cent. of the author's cases. It is spontaneous, dull and continuous, although nephritic colic may occur. The urine is seldom affected, but oliguria and anuria have been noted. Albuminuria is frequent. There may be troubles of micturition, as retention, incontinence or symptoms of cystitis. Compression symptoms may be present and involve the intercostal nerves, the branches of the lumbar plexus or the sciatic nerves. In contradistinction to kidney tumors in the adult, there is absence of varicocele and presence of circulatory troubles shown by edema of the lower limbs and of the face. Functional troubles consist of cough, dyspnea, disorders of digestion, peritonitis (from intestinal perforation), constipation, diarrhea, icterus. Fever may be present and continuous, 101.4° to 102.2° with evening exacerbations. The development of the kidney tumor is much more rapid than in adults. Out of 18 patients who were not operated on, 14 died in less than six months from the onset; 3 in less than a year and a half, and one lived for three years. Death is usually due to cachexia, more rarely to uremia. The differential diagnosis is between kidney tumor, and affections of the liver and spleen, and tuberculosis of the peritoneum and the ganglia. In tumors of the liver there is absence of ballottement and of a sonorous zone between the liver and the tumor. A hypertrophied spleen has a sharp and well-defined anterior border, has no ballottement, while its axis is obliquely from below inwards, not vertical like kidney tumor. Moreover, an examination of the blood will settle the diagnosis of splenic tumor. Tuberculous peritonitis, which is frequent in childhood, may be known by the fever, by other localizations of tuberculosis, by the bilateral lesions, ascites and the existence of irregular and indurated masses. As to tuberculosis of the ganglia, this is manifested by multiple mam-

millated tumors in the umbilical region, accompanied by fever and ascites. Treatment is of course surgical. The statistics of operation are 25 per cent. of deaths, 63 per cent. of relapses, and 12 per cent. of recoveries.

Lavage of the Blood in Diphtheritic Paralyses.—R. Romme (*Presse méd.*, June 13) reports an observation of M. Schoull, to the following effect:—A man of thirty years contracted diphtheria, and on the fifth day had paralysis of the soft palate. A month later, not only was there paralysis of the soft palate and of the esophagus, but also complete paraplegia, paresis of the upper extremities, ptosis, absolute gastric intolerance and cardialgia. The condition became aggravated within the following day or two, the bladder and rectum finally becoming involved. The heart beats became irregular and rapid, the respiration so embarrassed that death seemed imminent from asphyxia. In spite of injections of strychnine and caffein, inhalations of oxygen and ether sprays, the patient appeared to be doomed, when M. Schoull tried the application of leeches to the arms, and the injection of a litre of Hayem's serum as lavage of the blood. The patient rallied immediately, and in ten days was able to begin the usual treatment for diphtheritic paralyses.

Meningeal Symptoms Occurring During the Course of Gastro-Intestinal Affections in Children.—E. Ausset (*L'Union Méd. au Canada,* June) considers the diagnosis of true meningitis occurring under these circumstances to be extremely difficult, and yet the life or death of the little patient may depend upon a prompt decision. It is now admitted that cases of meningeal irritation or congestion may occur which do not go on to suppuration. When complicating gastro-intestinal disorders, they are due to the action on the nerve centres of the chemical poison or the bacterium responsible for the disease. The author holds that simple convulsions without further meningeal symptoms may be and usually are due to some irritation or inflammation of the meninges. The proof is that a child who has had these convulsions without other meningeal symptoms may later be attacked by encephalitis, cerebral sclerosis, hydrocephalus, etc., in a word, by definite lesions which show that the convulsion was the sign of the onset of some grave change in the nerve centres. It is merely a question of *degree* whether the case recover or go on to a fatal issue. For that reason an examination of the cephalo-rachidian fluid will scarcely aid in the diagnosis, bacteria having been found absent in this fluid at the autopsies of cases which had died from meningitis. Meningeal symptoms are not the only ones to occur during the course of gastro-enteric diseases. Myelitis, encephalitis, thrombosis of the sinuses, and especially hydrocephalus, may accompany the condition. As to treatment, lumbar puncture may be of benefit in subduing pain and diminishing hydrocephalus if it exist—it may in some cases assist in the diagnosis. It must be performed under strict antiseptic precautions, and it should not

be repeated too often, nor undertaken at all unless clearly indi-
cated.

The Pathology of Summer Diarrheas of Children.—G. W.
Boot (*Jour. Am. Med. Assoc.*, June 13) says that it seems highly
probable that the *Bacillus coli communis* is at times the cause of
diarrheas in children, but it seems much more probable that a
bacillus of the same group, though a distinct species, is the specific
cause of most cases of summer diarrheas. This germ is the bacil-
lus of Shiga, which first came into prominence through the
investigations of Shiga into the cause of epidemic dysentery
in Japan. It is probable that the same bacillus has been
previously described by Celli and Fiocca and by Celli and
Valenti. Flexner isolated it from a case of dysentery in
Manila, and Kruse in Germany found it also in cases of dysen-
tery. The most convincing proof that it is the cause of summer
diarrhea of children comes from Duval and Bassett, who report
that they isolated it from 42 cases of summer diarrhea of infants
in the United States. They did not find this bacillus in the stools
of healthy infants nor in the stools of infants that had simple diar-
rheas. The blood of infants that had summer diarrhea caused
agglutination of Shiga's bacillus, and blood of other infants did
not cause such agglutination. The proof that bacillary dysentery
of adults and summer diarrheas of children are often due to the
same bacillus or to varieties of the same bacillus is apparently
complete. The bacillus of Shiga is said to resemble the *Bacillus
typhosus*, consisting of short rods with rounded ends, usually oc-
curring single, but sometimes in pairs. No flagella were found
by Shiga. No spores have been found. It grows at room tem-
perature, but better at body temperature. In the fastigium of the
disease the slimy, bloody stools gave almost a pure culture. When
the stools became purulent the colon bacillus and streptococci be-
came more numerous. It was never found in the stools of healthy
persons. Serum from patients with dysentery caused agglutina-
tion of the bacillus. Serum from other patients did not cause
such agglutination. A culture injected intraperitoneally into
guinea-pigs caused enlargement of inguinal and axillary glands,
exudation of fluid into the peritoneal cavity, exudation over the
spleen, liver and intestines and ecchymoses into the intestinal walls.
Shiga found the bacillus in the rectal walls, in the walls of the
ascending colon and in the mesenteric lymph glands, as well as
in the intestinal contents. He inoculated himself with a dead cul-
ture and concluded, as a result of his experiments, that the poi-
sons of the bacillus were more virulent to the human body than
those of typhoid or cholera. The changes caused by the bacillus
were most marked in the large intestine. The lower part of the
ileum was more markedly affected than any other part of the
small intestine. The stomach usually escaped. This localization
of the disease process coincides closely with that of summer diar-
rheas of children. In summer diarrheas of children there may
be some gastritis, but it is rarely well marked. There may be

some points of extravasated blood, but as a rule the stomach is free from change. The upper part of the small intestine is also usually free from change, but as we pass toward the ileocecal valve the changes appear. In the mildest cases there is but a moderate congestion. In more severe cases there are points of hemorrhage into the intestinal wall. In cases still a little more severe there are found localized areas of necrosis of the mucosa and submucosa and if the patient has lived long enough there is ulceration. The mucosa is infiltrated with round cells. Bacilli are found in the tissues of the mucosa and submucosa, rarely deeper. In some cases there is a necrosis of the mucous membrane as a whole and a transformation of it into a whitish, leather-like substance which shows no sign of nuclear staining. This layer is sharply differentiated from the inflammatory zone underneath. In cases of less severity the intestinal glands may be found in a state of cystic dilatation. Small hemorrhages are characteristic of this form of infection. In the more chronic cases there is a marked infiltration of the intestinal walls, so that they are thickened and stiffer than normal while at the same time their lumen is narrowed. The mesenteric lymph glands usually show some changes, being enlarged as a rule. The kidneys are apt to show parenchymatous degeneration. Other organs show changes at times, but these are inconstant.

The Paroxysms of Whooping Cough Treated by Pulling the Lower Jaw Downwards and Forwards.—(*Naegeli.*) Jacob Sobel (*Arch. of Ped.*, June) thus sums up the results of his experience with Naegeli's maneuvre for overcoming the spasm of the glottis in whooping cough: (1) Pulling the lower jaw downwards and forwards controls the paroxysms of whooping-cough in most instances and most of the time; (2) the method is usually more successful in older children than in younger ones and infants; (3) in cases without a whoop the expiratory spasm with its asphyxia is generally overcome, and in those with a whoop the latter is prevented; (4) as a single therapeutic measure for the control of the paroxysms it deserves a place in the treatment of pertussis and is as successful as any single drug, or even more so; (5) mothers, nurses and other attendants should be instructed in its use in order that the oncoming attacks, especially at night, might be arrested; (6) the manipulation is harmless, painless and easy of application without any of the ill effects of drugs; it offers a maximum good effect with a minimum derangement; (7) the only contraindication to its application is the presence of food in the mouth or esophagus; (8) patients treated in this manner are less likely to suffer from complications and sequelæ, than those treated only medicinally; they emerge from the disease in far better condition, less exhausted and less emaciated because vomiting has been controlled; (9) it is advisable to try the maneuvre in other spasmodic coughs and laryngeal spasms (laryngismus stridulus, pressure of enlarged cervical and bronchial glands, influenza, glottis spasm in catarrhal laryngitis), although my experi-

ence has seemed to show that it is far less efficacious in these con-
ditions than in whooping-cough; (10) this method, being directed
mainly to the control of the glottis spasm, does not preclude the
advisability of supporting and sustaining the patient, guarding his
gastrointestinal tract, establishing equilibrium in the nerve centres
and affording him every possible hygienic advantage; (11) it is
particularly indicated in instances complicated with diffuse bron-
chitis, bronchopneumonia, convulsions, epistaxis, subconjunctival
or subcutaneous hemorrhage, or sublingual ulceration, and in
those children who by virtue of age, the presence of rachitis, scrof-
ula or general debility are predisposed to serious complications
and sequelæ.

**Suggestions for Reducing the Prevalence of Summer Diar-
rhea in Infants.**—J. R. Snyder (*Jour. Am. Med. Assoc.*, June 13)
says that we witness an annual recurrence of this preventable dis-
ease, first, because there is a large percentage of practitioners still
believing that heat and humidity alone, and without the presence
of a single bacterium are capable of producing the disease. This
view precludes any acceptance of its preventable nature. Conse-
quently a large percentage of the medical body has shown no in-
clination to co-operate with those especially interested in carrying
out prophylactic measures. Besides, there is involved in the sub-
ject of prophylaxis itself a complexity and a multiplicity of ques-
tions that have been discouraging to the accomplishment of appre-
ciable results. Once we undertake to force the right of every child
to receive nothing but a clean, unpoisoned food, we find ourselves
entangled "in embarrassing questions of home sanitation and of
personal hygiene, and in graver questions of State medicine and
of public charities." Another factor which has offset any results in
the way of general prophylaxis, is found in the increase in the
number of children being artificially fed. The artificial foods are
the ones most likely to be contaminated, and the artificially fed
infant offers the least resistance to bacterial poisoning. Can we
overcome these difficulties? Since the whole question resolves
itself into one of education, the writer believes that these disorders
should no longer be accepted as inevitable. The persistent pushing
of the infectious nature of summer diarrhea at every available
opportunity by every member of the profession who believes in
it will soon have the profession at large educated up to it. Doctors
should take the trouble to ascertain the condition of the dairy fur-
nishing the milk from which their formulæ are to be made. There
should also be milk commissioners, such as have already been
established in some cities, which assume the responsibility of as-
certaining and of recommending dairies and dealers which can be
depended on to furnish clean milk. Besides members whose duties
are purely executive or clerical, the commission is usually com-
posed of four experts. (1) A veterinarian, who examines the cattle
and all matters pertaining to their health, care and management;
(2) a physician, who examines all persons connected with the
dairy, in relation to their habits—of cleanliness as well as for

· transmissible diseases; (3) a bacteriologist, who examines the milk to test the efficiency of the measures in force for excluding bacteria, and (4) a chemist, who examines the milk as to its composition and for adulteration. Sterilization and Pasteurization the author disapproves of, preferring milk that is free of contamination. Contamination in the home is frequent, and constant instructions must be given by the physician. In the tenements much could be done if the boards of health were to distribute a set of practical, explicitly worded and intelligible rules for the care of infants during the hot season and if these were to be printed in Yiddish, French, German and English. The pamphlets should be carried into the homes of the poor, and each mother given to understand that at a subsequent time a physician would visit her home to see if the measures were being observed. A corps of students from the upper classes of medical schools in large cities might be employed to distribute the pamphlets under the direction of hospital dispensaries and clinics. More important than all, mothers should be urged to nurse their children, and the number of bottle-fed infants be reduced.

ITEM.

The American Association of Obstetricians and Gynecologists will hold its sixteenth annual meeting in the Northwestern University Medical School Building, Chicago, Ill., Tuesday, Wednesday and Thursday, September 22, 23 and 24, 1903. Dr. J. B. MURPHY, Reliance Building, 100 State Street, is the chairman of arrangements and will gladly furnish any information to members and guests upon application. Dr. MURPHY also can be addressed, relating to accommodations, at the Auditorium Annex, or other hotels. •

The following papers have been offered: 1. President's address, L. H. DUNNING, Indianapolis. 2. Supravaginal amputation for fibroids, with report of cases, H. E. HAYD, Buffalo. 3. Traumatic rupture of intestines without external marks of violence, with report of cases, GEO. S. PECK, Youngstown, O. 4. Ectopic pregnancy, H. D. INGRAHAM, Buffalo. 5. Relationship of the colon to abdominal tumors, J. F. BALDWIN, Columbus. 6. Cysts of the kidney, resembling ovarian tumors, with cases, RUFUS B. HALL, Cincinnati. 7. Total extirpation of the vagina for carcinoma, CHARLES G. CUMSTON, Boston. 8. Surgery of the female bladder and urethra, JOHN B. MURPHY, Chicago. 9. Surgery of the ileocecal valve for nonmalignant disease, N. STONE SCOTT, Cleveland. 10. The curette in postpartum infections of the uterus, D. TOD GILLIAM, Columbus. 11. The use of veratrum viride in surgical and obstetrical practice, CHAS. L. BONIFIELD, Cincinnati.

12. Should the uterus and ovaries be removed in cases of double pyosalpinx? C. C. Frederick, Buffalo. 13. Placenta Previa, E. T. Abrams, Dollar Bay. 14. The limitations of Cesarean section, E. Gustav Zinke, Cincinnati. 15. Further notes on ovarian grafting, Robt. T. Morris, New York. 16. Conservative surgical treatment of the uterine adnexa, A. P. Clarke, Cambridge. 17. The value of vaginal Cesarean section, M. Stamm, Fremont, O. 18. Hysteria as a result of chronic atrophic parametritis; a contribution to the study of nervous disturbances, W. A. Freund, Berlin. 19. Anesthesia in abdominal surgery, J. J. Gurney Williams, Philadelphia. 20. The technic of gynecological work, A. Vander Veer, Albany. 21. Emergency abdominal surgery at the patient's home—a demonstration, W. G. Macdonald, Albany, 22. Discussion of common causes of death following pelvic and abdominal operations, Joseph Price, Philadelphia. 23. The indications and technic of vaginal drainage for suppuration in the pelvis, A. Goldspohn, Chicago. 24. Infravaginal elongation of the cervix, M. Rosenwasser, Cleveland. 25. Appendicitis, Walter P. Manton, Detroit. 26. Chloroform in labor, Edwin Ricketts, Cincinnati. 27. Study of the symptoms and surgical treatment of intestinal perforation in typhoid fever, W. D. Haggard, Nashville. 28. Symptomatology of the pelvic musculature, Hugo O. Pantzer, Indianapolis. 29. Palliative treatment of cancer of the cervix, Walter B. Chase, Brooklyn. 30. Abdominal versus vaginal hysterectomy in carcinoma where the radical operation is warranted, John B. Deaver, Philadelphia. 31. Hysterectomy in infectious diseases of the uterine appendages, H. C. Deaver, Philadelphia. 32. The scope and limitation of myomectomy in the treatment of fibroid tumors of the uterus, L. S. McMurtry, Louisville. 33. In memoriam.—William E. B. Davis, L. S. McMurtry, Louisville. The following have promised papers, the titles of which are to be furnished later: Charles A. L. Reed, Cincinnati; J. H. Carstens, Detroit; Washington H. Baker, Philadelphia; Edward J. Ill, Newark; William A. B. Sellman, Baltimore; Walter B. Dorsett, Saint Louis; Edwin Walker, Evansville; Joseph H. Branham, Baltimore; L. W. Swope, Pittsburg; George Ben Johnson, Richmond; Joe W. Hyde, Brooklyn; William J. Gillette, Toledo; A. H. Ferguson, Chicago; James F. W. Ross, Toronto.

All members of the medical profession are cordially invited to attend the scientific sessions.

ORIGINAL COMMUNICATIONS.

A CASE OF PREGNANCY IN A DWARF WEIGHING THIRTY-NINE POUNDS. ABDOMINAL HYSTERECTOMY.

BY

W. G. WILLARD, M.D.

(With five illustrations.)

THE case to be described is in certain respects extremely rare, if not entirely unique. She appeared at my office in December, 1902, accompanied by her husband, the two making a remarkable combination of the halt and the blind. The patient, an adult woman, was so small that it was possible and so deformed that it was necessary that she be transported in an infant's carriage. With her was her recently wedded husband, a blind man of about average size, who had brought her from the northwest part of the city on the elevated railroad and then found his way through the downtown streets to the office building. The history in detail is as follows: Mrs. W., aged forty years, was referred to me by Dr. J. H. Stotts.

Family history: Father, Irish; died at sixty-seven years; cause of death unknown. Mother, American; died at seventy-two years of pneumonia; had previously suffered much from eczema, rheumatism and asthma. One half-brother; patient states that he was scrofulous; died at twenty-seven years, probably of tubercular bone disease. During the patient's intra-uterine life her mother worked excessively hard in caring for the sick brother.

Previous history: At birth the patient weighed eight pounds, and understands that to all appearances she was as well as the average new-born infant. She was nourished at the breast. When seven weeks old the first of a long series of fractures took place while she was being bathed. This was a fracture of the femur. Thereafter she had from two to four fractures per year until they numbered fifty-four in all. She states that her parents finally

Fig. 1.   Before hysterectomy.

became tired of doctors and splints and simply bound up the fractures themselves. The last break, one of the left leg, occurred in 1898.

The patient has never walked. Until her fourth year she stood supported by surrounding objects, but from that time on has not been upon her feet. When eighteen months old she had varioloid, and subsequently measles, mumps, scarlet fever and diphtheria.

Menstrual history: The menses appeared at fifteen years, and

thereafter with varying regularity. For several years past she has flowed once in six weeks, the period lasting five days. Has always had much cervical leucorrhea.

In July, 1902, she was married to a blind man, thirty-five years of age. Her weight at that time was thirty-nine pounds, his between 120 and 130 pounds. She menstruated but once after marriage, August 3. In August and September she had slight morning nausea.

Fig. 2. After hysterectomy.

Examination : The patient presented the appearance of a rachitic dwarf, with extreme deformity of pelvis and extremities. The abdomen, always large, was increased in size, and contained a globular, elastic tumor, lying somewhat more to the right than the left side, and rising full half the distance between the umbilicus and the sternum. Fetal movements were slight, but unmistakable. Fetal heart sounds could not be heard. The breasts presented the usual changes of pregnancy.

Vaginal examination showed a much contracted and deformed pelvic cavity. The cervix, characteristically softened, was reached

by feeling around a projecting angle of bone, the outcome of a
fracture of the acetabulum and projection inward of the right
femoral head. Ballottement obtainable. The limbs presented gross
deformities. False joints existed at both elbows. The left leg was
arched with the convexity forward and the shaft of the tibia was
less than one-half inch in thickness. Still greater deformity ap-

Fig. 3.   After hysterectomy.

peared in the right leg, which was bent outward and backward at
the middle, the two halves being so doubled that they were parallel,
the heel readily touching the external aspect of the patella and the
large toe easily approximated to the right trochanter. The ster-
num was projected forward at an angle of about 75 degrees.
Lordosis and moderate scoliosis characterized the lower spine.
The pelvic measurements were as follows:

Distance between ant. sup. spines....................18   cm.
Distance between iliac crests.........................20   ..
Distance between tubera ischii............ 4   ..
External conjugate ....12½   ..
Diagonal conjugate .... 6½   ..
Transverse diameter of pelvic cavity............... 4   ..
Height of patient in sitting position.........47 cm. (18½ in.)
Height of patient held upright, with feet
  touching the floor....................71 cm. (28½ in.)
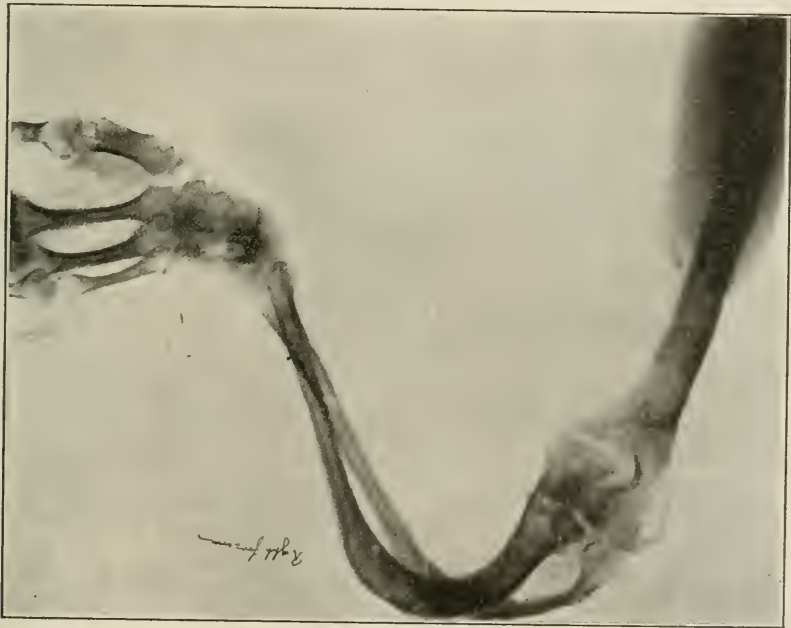
Fig. 4. Right forearm.

The patient had a chronic bronchitis ; her breathing was rapid and labored and speech somewhat difficult from this cause and from the crowding up of the diaphragm by the enlarged uterus. She could breathe comfortably only when in the upright position.

In considering what should be done for the patient it was evident in the first place that delivery even at that time (five months) per vias naturales was out of the question. Secondly, postponing operation until the child should be viable was deemed impracticable, as the mother was already being hard pressed for breath and nearly all available space in the abdomen was even now occu-

pied by the uterus. It was therefore deemed expedient to remove at once the uterus and its contained fetus through an abdominal incision.

The patient was examined by Dr. Charles Adams, and after her admission to the Passavant Hospital by Drs. Hooper and Holmes of the attending staff, who agreed as to the wisdom of an immediate operation.

An attempt was made to secure a skiagraph of the abdomen and pelvis, but owing to the exaggerated movements of the tho-

Fig. 5. Lower extremities.

rax and abdomen, due to the labored respiration, the result was unsatisfactory. Skiagraphs were secured of the right arm and leg and photographs both before and after the operation were taken by Dr. Dittmer of the house staff of the hospital.

Operation was performed January 5, with the assistance of Dr. Adams and the house staff, and in the presence of Drs. Hooper, Holmes, Bartlett and Waters. Under chloroform anesthesia, a supra-vaginal amputation was done as rapidly as possible, the patient being decidedly cyanotic. As lying upon either side or the back was painful and rendered breathing difficult, the

patient was propped in the upright position after coming out from
the anesthetic. Her recovery was rapid and uninterrupted, and
the healing of the abdominal wound without suppuration. Re-
cently she has had a severe bronchitis, and the strain incident to
coughing has produced a small hernia at the umbilical end of the
cicatrix.

The uterus was turned over, intact, to Professor J. C. Webster,
of Rush Medical College. Examination of the hardened speci-
men added one more abnormal condition to the many already re-
corded, viz., a placenta previa marginalis.

929 Marshall Field Building.

THE SURGICAL TREATMENT OF PUERPERAL INFECTION, A PART OF THE SYMPOSIUM ON PUERPERAL INFECTION.[1]

BY

H. J. BOLDT, M.D.

If some form of surgical intervention be indicated at all for a
patient ill with puerperal infection, if a satisfactory result is to be
hoped for from such intervention, it is necessary first, to have a
correct appreciation of the pathological process present. That
this is not always easy we all must acknowledge; it is, in fact,
sometimes impossible. This is especially likely to be the case in
instances seen but once, in consultation, without the opportunity
of retaining the patient under observation. It is desirable, there-
fore, to transfer all patients with an apparently serious infection to
an institution where they can be kept under constant observation,
if conditions at their homes make this impossible. The uncer-
tainty of appreciating correctly from a single examination is best
realized by those of us who see many patients with puerperal in-
fection in consultation, perhaps hazarding either a favorable or
unfavorable prognosis, only to learn subsequently of a different
termination of the case from that of our prophesy.

In the consideration of the surgical measures, I shall refer only
briefly to those about the utility of which there can be no doubt
when an indication for their employment exists. In parametric
abscess, and all other suppurative conditions, the abscess or ab-

[1] Read at the meeting of the New York Academy of Medicine on May
21, 1903.

scesses should be opened as soon as their presence has been determined, but not as is so frequently done, with a mere scalpel puncture, but by means of an *extensive* incision. The wound should be made as large as conditions will permit, then after thorough cleansing with such solution as the operator may consider most satisfactory, it should be loosely packed with gauze, preferably with such gauze as may be relied upon to cause no toxic symptoms, as nosophen, or plain sterilized gauze. The dressings should be changed as frequently as the condition may require, this being usually every second day.

If it be determined that the uterus contains decomposing animal matter, it should be cleansed, preferably manually; a curette need rarely be employed for this purpose. It should be avoided if at all possible, because in the hands of a novice it is a very dangerous instrument in such cases. Even in the hands of an expert it can not be used without risk.

The indiscriminate curetting which, unfortunately, is still being done to a large extent in puerperal women who happen to have an elevation of temperature, or who may perhaps have had a slight chill, can not be too severely condemned. I have seen a number of deaths which in my opinion were indirectly due to that procedure. Another, although a minor intervention, compared to curettage, resorted to much oftener than necessary, is repeated intrauterine irrigation. The chills which the patients often have after such intervention may usually be ascribed to it.

I shall now consider the major surgical interventions, and more especially the one about which much has been said during the last two years—extirpation of the uterus. It is understood that such grave surgical intervention should be considered only in those instances of puerperal infection in which the source of the infection seems limited to the uterus, and where no other treatment is considered to be of avail; those patients who are thought to be doomed to die without it, and who with it might be saved; in short, the gravest forms of puerperal infection.

In reviewing the cases of puerperal infection reported in literature as cured by means of hysterectomy, I was forcibly impressed that comparatively few stand careful analysis by any one having had large experience with such patients as absolutely favoring the justification of the operation. We should bear in mind that sometimes seemingly hopeless patients recover. We have not yet reached such degree of proficiency that we can say from the result of an examination of the secretions or of the blood, that the pa-

tient is suffering from a definitely limited form of sepsis, but even
if the patient be ill with bacteremia, and the local examination re-
veals that the uterus alone seems to be the source of infection, the
parametria, pelvic peritoneum, tubes and ovaries free from in-
duration, yet this would not invariably indicate that the uterus
must be removed to save the patient's life. I say this most em-
phatically because I have seen patients whose blood showed pure
cultures of micro-organisms, but because their general condition
did not, in my opinion, justify such grave surgical intervention, I
relied entirely on other methods of treatment, and they recovered.
On the other hand patients were observed from whose blood re-
peated cultures were made with negative result, and yet a number
of them died under the clinical picture of blood-poisoning. On
post-mortem examination, blood from the large vessels, and the
scrapings from the peritoneal surfaces usually showed a strepto-
coccic infection. This teaches an important lesson.

Having come to the conclusion that neither an examination of
the blood nor an examination of the secretions from the uterus
can, with our present knowledge, give us satisfactory information
whether or not an operation is indicated, it behooves us to ask if
any symptom will give such information. Let me refer briefly to
the more important ones. In text-books the occurrence of a chill
in the puerperium is taught to be the initial symptom of puerperal
fever. In my own experience chills have been absent in about
one-third of the cases. Therefore, while a chill is of importance,
it is not an absolutely reliable symptom of a serious septic infec-
tion, even if followed by a high temperature and an accelerated
pulse-rate. All three symptoms may be caused by other factors
and may soon disappear. It is the continuance of such symptoms
upon which we base our diagnosis of puerperal infection. In re-
ferring to the symptoms I do not wish to convey the idea that it is
difficult to make the diagnosis that a puerperal infection exists,
but I do emphasize the fact that it is *very* difficult to make a correct
indication for a surgical intervention, especially the one now under
consideration. I know of no other disease in the domain of sur-
gery in which the physician is placed in an equally responsible
position in forming the indication for a major surgical interven-
tion. It is a matter of personal judgment. As illustration: I
have operated according to the rules laid down in a contribution
on this subject on a previous occasion, namely, in patients ill with
puerperal infection, the condition of the patient becoming more
serious despite other treatment adopted, one or more chills having

been experienced by the patient, the blood showing micro-organisms; but my patients promptly died, whether vaginal or abdominal hysterectomy had been performed. Then I operated on a number of patients where the clinical picture left no doubt as to the seriousness of the puerperal infection that was present, but the blood showed a negative result, but they also died. In all these instances the source of the deadly infection seemed limited to the uterus. Sections of these uteri showed that streptococci had invaded the muscular structure for some distance, but none were found to have traversed it as far as the peritoneal covering. Of course these were all desperate cases that were subjected to hysterectomy. It may be said that I waited too long before the operation was undertaken. That criticism will not hold with a conscientious physician, because, in my opinion, it would be unjustifiable to deprive a woman of her pelvic organs as long as there is hope of cure by other means. Again the criticism may be made that had an abdominal hysterectomy been performed instead of vaginal hysterectomy, my results might have been better, in view of the fact that statistics show a better prognosis for the abdominal operation. I maintain that the shock from an abdominal operation is much greater than from the operation done per vaginam. A vaginal hysterectomy with clamps seldom requires more than ten minutes, in fact, in the patients with puerperal infection subjected to this operation by me, the average time consumed was not more than six minutes. The point in my opinion is this, that in recoveries noted after abdominal hysterectomy, the patients were in a better general condition, in fact in such condition that I probably would not have considered the operation at all at the time.

Before going further in the consideration of our theme, I depart from it for a moment to ask for information, how to get positive results from the bacteriological examination of the blood in a few hours. In our experience we have been unable to get such definite results in less than twenty-four to forty-eight hours, even in instances of positive bacteremia. This is too long a time to make this important method of diagnosis of therapeutic value to the patient. It has been claimed that bouillon cultures show the result in twelve hours or less. We have tried various methods and found all wanting in rapidity. I would be extremely grateful to be informed of a method which can be shown to be reliable on this point.

To return to our subject. There are, however, instances of puerperal infection in which hysterectomy is indicated. Namely,

such patients who have decomposing placental structure in the uterus that *can not* be removed through the natural channel. Such instances are extremely rare; I have not had the opportunity of seeing even one among the large number of such patients under my observation. The operation is also indicated by the presence of suppurating and sloughing myofibromata. It is further indicated in instances of septic metrophlebitis, if it be possible for one to make the diagnosis of this condition, and with the proviso that the general condition still justifies the operation.

Whether the hysterectomy should be done by the abdominal, or by the vaginal route must be determined by the local conditions, and with the consideration of the general condition of the patient. If it be possible to remove the organ without serious mutilation per vaginam, that method should be the one of choice. If, however, such be not feasible, when the organ is too large and the vaginal canal too narrow, so that it is evident that the softened uterus would be subjected to so much traumatism as to contaminate the pelvic peritoneum and the fresh wounds with the septic interior, the abdominal route should be chosen. Furthermore, if the process be such that it is intended to probably remove the broad ligaments and some infected blood-vessels, the abdominal route must necessarily be that of choice. That it is possible to remove infected veins with a successful result in puerperal pyemia has been proved by Trendelenburg.

A puerperal uterus with a sloughing myoma should always be removed from above.

It is an accepted fact that an old gonorrheal infection is prone to be relit in the puerperium, and that such pyosalpinges are likely to threaten life. In such instances, however, we are not combatting an acute septicemia. Such patients if subjected to timely surgical intervention are likely to recover. The pus sacs should be opened from below and drained. Whether a more radical operation in the future will be necessary must be determined by the progress of the illness.

In instances of diffuse peritonitis, provided that they are not of the foudroyant type, it is advisable to open the abdomen, to thoroughly evacuate all pus pockets and flush the abdominal cavity with saline solution and to drain the abdominal cavity through a large incision in the cul de sac. The head of the bed should be elevated to permit a better gravity to and through the opening made, as recommended by George R. Fowler, of Brooklyn, in the treatment of peritonitis.

It should be borne in mind that the women who have had a criminal abortion performed most frequently are attacked with the acute forms of infection.

There are instances of what I term a chronic puerperal infection. The acuteness of the illness has at no time been so marked as it was in those patients ill with the foudroyant type of puerperal infection, patients who have passed a week or more without showing any improvement in their condition, the uterus being relaxed in consistence, a pelveoperitonitis being present, the adnexa being the seat of pus sacs. Such instances offer the most favorable prognosis among the severe puerperal infections; and it is in such conditions that I as well as other operators have had good results by resorting to radical operations. If after a lapse of longer than two weeks after confinement or abortion and the general condition of the patient is fair, I prefer to operate by means of laparatomy; if earlier, then per vaginam. Exceptions of course occur.

Conclusion. In the acute forms of puerperal septicemia and pyemia in which it is probable that the general circulation has been invaded by microorganisms, whether a bacteriological examination of the blood at the time of making the examination proves this or not, no method of surgical intervention is of benefit; on the contrary, it is likely to shorten life.

In all puerperal infections the form of surgical intervention, if one be indicated, must be left to the judgment and conscientiousness of the physician, and the prognosis will vary according to the condition to be combatted.

With our present knowledge no strict rule by which one should be governed can be laid down.

39 EAST 61ST STREET.

THE BACTERIOLOGY OF THE PUERPERAL UTERUS. ITS RELATION TO THE TREATMENT OF THE PARTURIENT STATE.[1]

BY

S. MARX, M.D.,
New York City.

IN view of the much disputed point even to this day in regard to the bacteriologic findings in the puerperal uterus, the author of this article has undertaken the following investigations, hoping as a result of these to prove one way or the other the following problems :

(1)   Is the puerperal uterus a sterile organ?

(2)   In what way does a uterus free from bacteria influence or assist us in diagnosing a non-septic condition?

(3)   As a result of these investigations how is our treatment of the parturient state to be influenced?

To approach the first problem as to the bacteriology of the puerperal uterus we examined by means of culture tubes the uteri of fifteen women, taking them as they presented themselves after labor ; consequently they were unselected cases.   Upon these we made forty-eight bacteriologic tests.   The accuracy of the investigation depends in large measure upon the precautions with which the examination is made, and fully realizing this, these examinations were undertaken with the greatest possible care in order to avoid any possible error due to outside contamination.   The asepsis of the operator as well as the surgical cleanliness of the material brought into contact with the patient was as perfect as work in a well-appointed operating room could possibly make them.

Technique.—The instruments used in making these cultures from the fundus of the uterus were : Polk's cervical speculum, bullet forceps and a platinum loop. All of these instruments were sterilized by boiling. The patient was placed crosswise on the bed, and the buttocks were brought well over the edge. The vulva was thoroughly cleaned and finally sponged with a 1-100 carbolic acid solution.   The vagina was not douched or otherwise cleansed.

The bivalve vaginal speculum was then inserted, the cervix grasped with a bullet forceps and drawn downwards and forwards. It was then thoroughly sponged with a carbolic acid solution. After the neighborhood of the external os had been thus treated, the Polk cervical speculum was passed through the cervical canal or at least through its remains—since it must be understood that many of these examinations were made within a few days of the labor when no true cervix is present—to the internal os or directly into the body of the uterus. The platinum loop, sterilized in the flame and bent to conform with the direction of the uterine cavity, was then passed through the calibre of the cervical speculum and into the cavity of the uterine fundus.   A liberal amount of the blood-stained lochia was thus removed by repeated introductions and upon each removal the material within the loop was immediately deposited upon the culture medium, the tube containing which was held by an assistant who stood by the side of the operator.   The medium which was used was made of the following ingredients :

Agar-agar..........................	15 grams
Liebig's Beef Extract...............	3 grams
Pepton (Witte).....................	10 grams
Sodium chloride....................	5 grams
Water..............................	1000 c.c.

This medium placed in test tubes was steamed in the Arnold sterilizer for one hour on each of three successive days and afterwards cooled in slants.   As above stated we made forty-eight examinations on fifteen women but we shall only carefully analyze the results upon fourteen women from forty-seven examinations, since in one case only one examination was made and, as bacteriologic findings were absolutely pathologic owing to a profound sepsis which the patient had it was thought better not to incorporate this case in the series.   Nevertheless the case is of such importance and so unique that its history will be gone into more fully later on.

In each case the culture was taken on labor day.   This is important since very few of such examinations have been reported and since the time at which the cultures are made has an especial bearing on one of the problems before us.   These cultures were taken from six to twelve hours after the completion of labor and on every other day thereafter.   If the first three cultures were found negative, this carrying us over a period of full five days, further cultures were not taken, unless the patient had a subsequent rise of

temperature. Thus in some of the patients five cultures were taken.

The first culture from Case I. and the second culture from Case II. were the only ones that proved positive. The colonies in these two cases appeared to be identical. At the end of twelve hours very small colonies had developed. These were points along the track of the loop and were discrete. They had a waxy, white appearance and were opaque. At the end of twenty-four hours these colonies had grown to be quite large globules. They retained their waxy appearance but were now translucent instead of opaque as they had been at the end of twelve hours. At the end of twenty-four hours cover slip preparations of one of the colonies showed streptococci in long and short chains—staphylococci in small clusters and a few diplococci. The staphylococci predominated. At the end of three full days the colonies had grown but little larger than at the end of twenty-four hours. They still retained the same appearance and remained discrete. Unfortunately these cultures were destroyed by mistake, preventing further observation of their biologic characteristics. Other than these all the cultures were negative. These two positive findings may possibly have been due to an accidental contamination for the following reasons : When taking the first four cultures the obturator was not used in the Polk cervical speculum. Two of these cultures were positive, those noted above. In taking all the other cultures, the obturator was used and after its use had been instituted not a single culture was positive. It is quite possible that in passing the cylindrical speculum without the obturator some of the cervical secretion was carried into its lumen and so contaminated the platinum loop in its passage. The two positive cultures might easily have been due to this source of error. In these same patients further and repeated examinations showed only a negative result. At the time of the positive findings the patients were in perfect health, were free from any temperature disturbances and remained so. Thus all these facts are fairly good proof that if our observations were correct they would only go to show that the presence of the pathologic germs was due to accidental contamination.

In a critical analysis of the fifteen cases here presented as to the bacteriologic findings in relation to the recovery of the patient we can state that we judged of the condition of the patients not solely by the temperature curve as all the previous investigators had done, but we also depended upon the temperature, the pulse rise,

the general condition of the patient and upon the condition of her environment, for while we were making these investigations an epidemic of a mild grippe prevailed in the wards of the hospital, a matter that will be of importance in a negative sense.
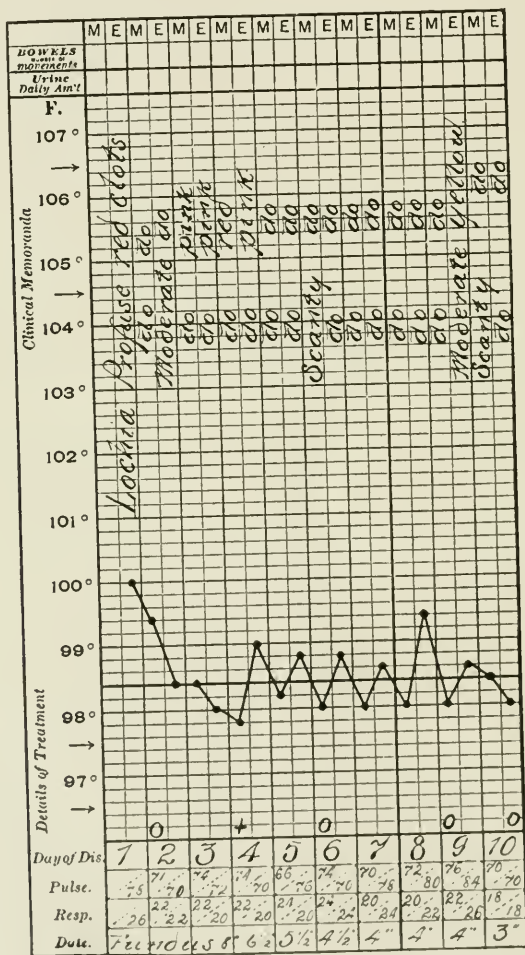
Case I. Maggie U.

In all of the forty-seven examinations we had negative results as to our findings except as noted above. We shall examine all these cases one by one and study them carefully but the more minute details can be appreciated better by comparing the various charts here appended.

CASE I.—Maggie U., æt. 33, I-para. Labor normal—duration of first stage seven hours, fifteen minutes; second stage forty-five minutes; third stage ten minutes. Convalescence normal. Highest temperature 99½. Highest pulse, 80. Five cultures extend-
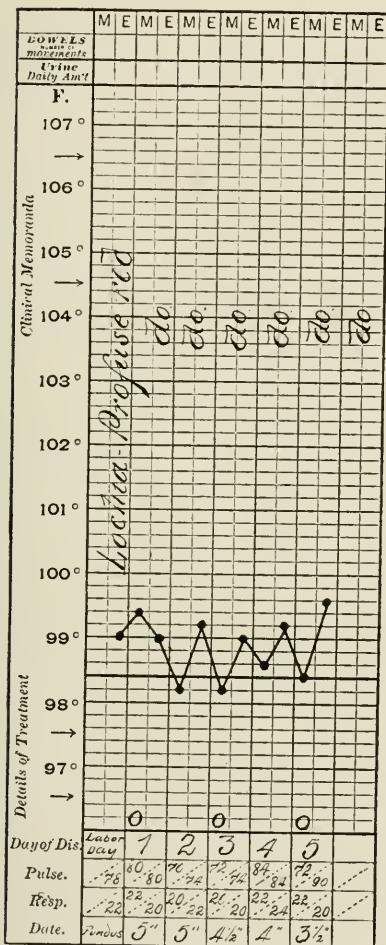
Case II. Inez F.
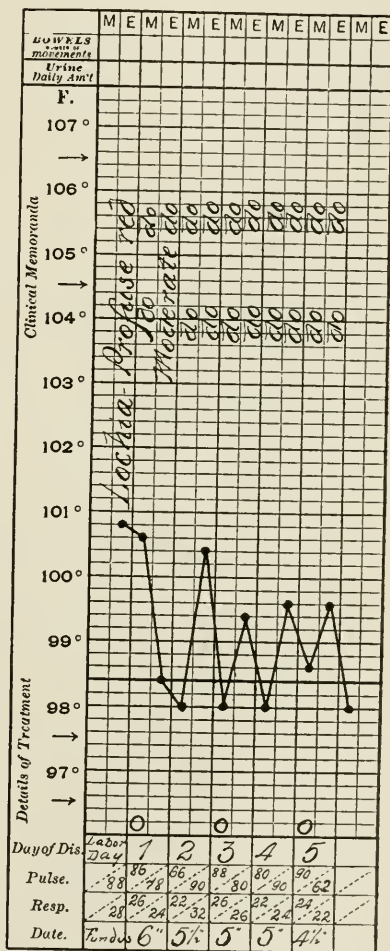
Case III. Annie C.

ing over ten days. All negative except one, positive on the fourth day—possible outside contamination.

CASE II.—Inez F., æt. 20, I-para. Labor normal—first stage 15 hours, 30 minutes; second stage 1 hour; third stage 15 minutes. Convalescence normal. Highest temperature 99½. Pulse 88.

Examination three cultures extending over a period of five days, all negative.

CASE III.—Annie C., æt. 26, III-para. Labor dry but otherwise normal. Duration first stage 10 hours; second stage 45 minutes; third stage 30 minutes. Convalescence normal. Highest temper-
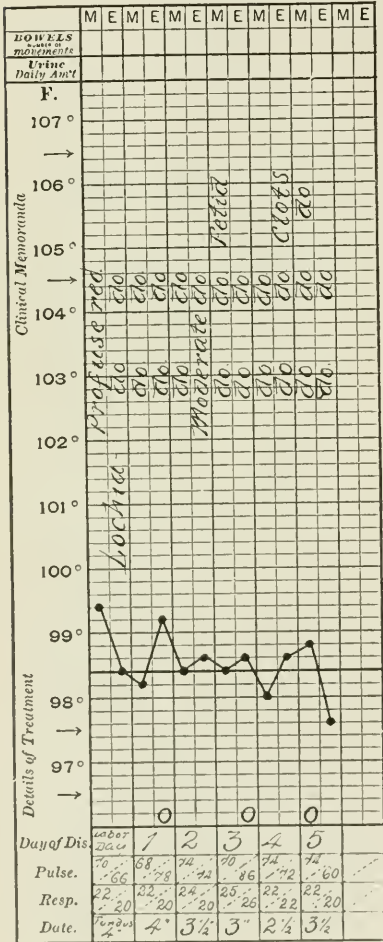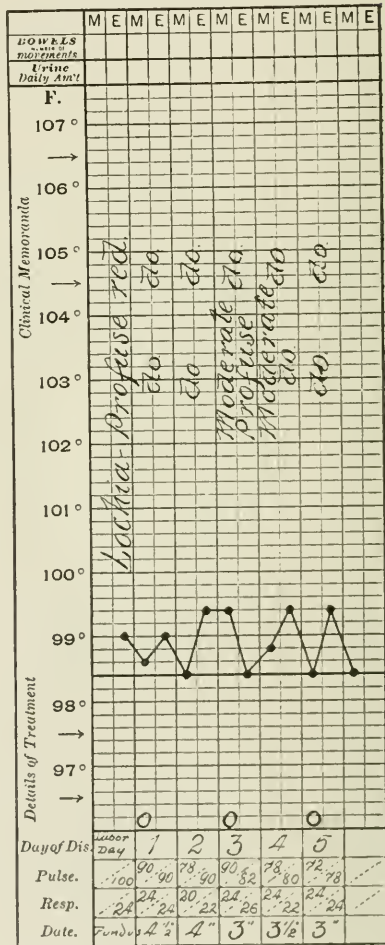
Case IV. Fannie S.   Case V. Dora T.

ature except for the initial post-partum rise 99⅘. Highest pulse 96. Examination—three cultures extending over full five days, negative.

CASE IV.—Fannie S., æt. —, I-para. Labor normal. Duration first stage 2 hours, 45 minutes; second stage 1 hour and 45 min-

utes; third stage 15 minutes. Convalescence normal. Highest temperature 99½. Pulse 86. Examination—three cultures extending over a period of five days, negative.

CASE V.—Dora T., æt. 24, II-para. Labor normal. Duration
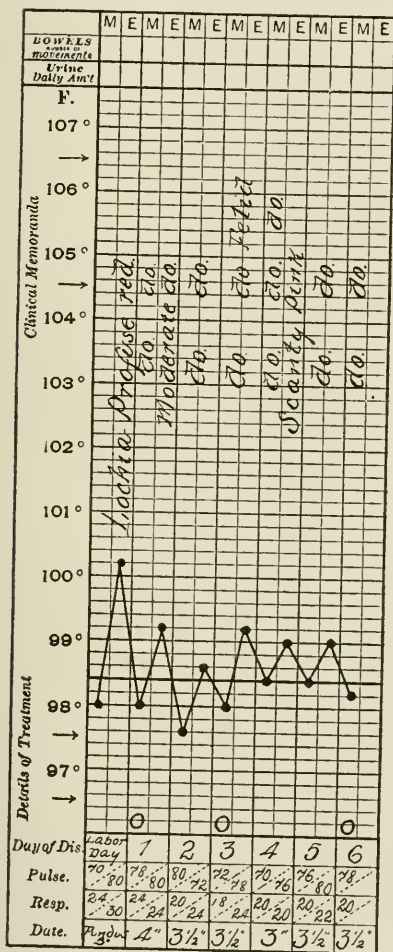
Case VI. Alice H.
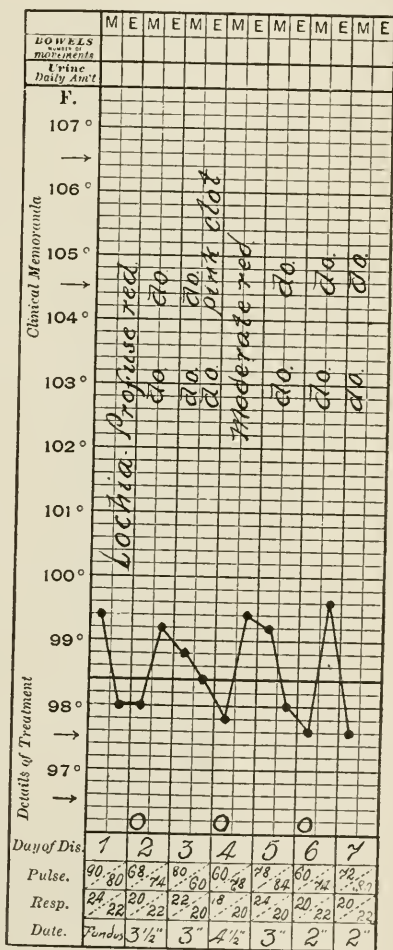
Case VII. Annie F.

first stage 3 hours and 50 minutes ; second stage 20 minutes ; third stage 20 minutes. Convalescence normal. Highest temperature 99½. Pulse 96. Examination, three cultures extending over five days, negative.

CASE VI.—Alice H., æt. 37, III-para. Pregnant 8 months.

Pregnancy nephritis. Symptoms of a urinary intoxication, the urea dropping to 117 grs. in twenty-four hours. Induction of premature labor by means of a bougie and the hand. Labor complex as above. First stage 2 hours and 25 minutes; second stage
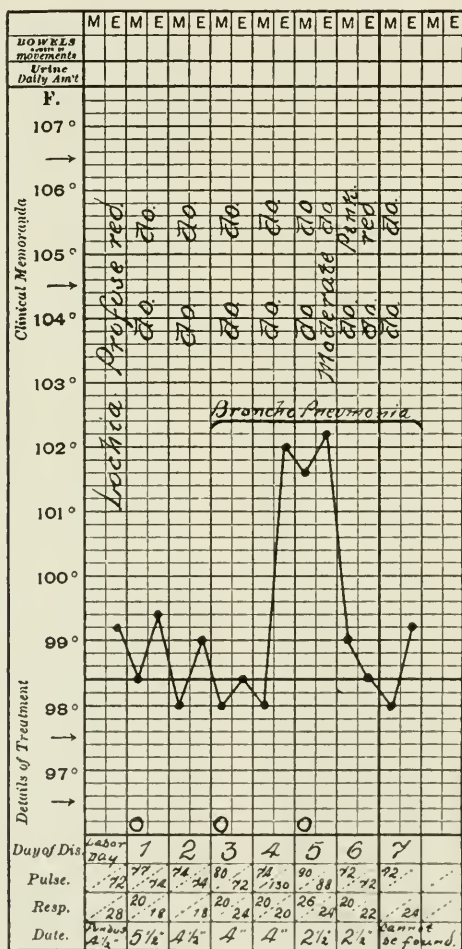
Case VIII. Isabella G.

1 hour and 20 minutes; third stage 30 minutes. Convalescence somewhat disturbed by the condition of the kidneys, otherwise satisfactory. Highest temperature 100 plus. Highest pulse 90. Examination three cultures extending over six days, negative.

CASE VII.—Annie F., æt. 20, I-para. Labor normal. Duration first stage 4 hours and 15 minutes; second stage 40 minutes; third

stage 30 minutes. Convalescence normal. Highest temperature
99½. Pulse 90. Examination, three cultures extending over six
days, negative.

CASE VIII.—Isabella G., æt. 31, IV-para. Labor normal. Dura-
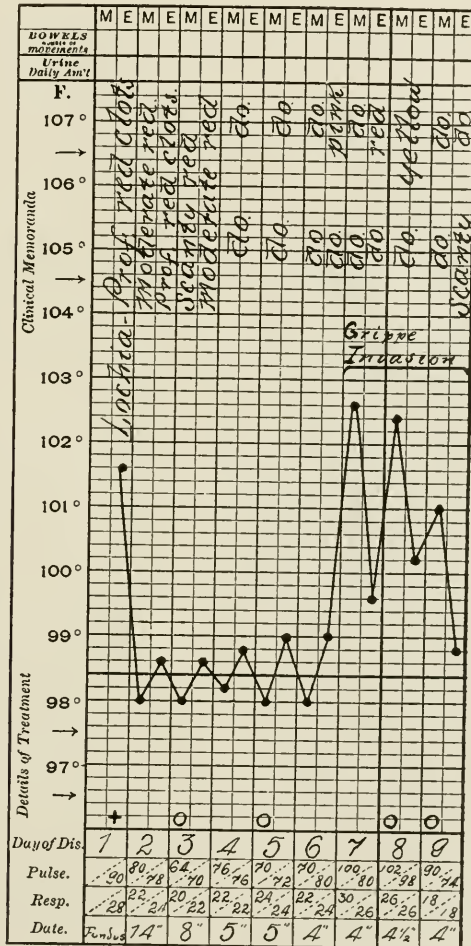
Case IX. Kate L.

tion first stage 3 hours and 40 minutes; second stage 1 hour and
20 minutes; third stage 25 minutes. Convalescence disturbed by
a grippe infection which became epidemic in the ward. Tempera-
ture and pulse rose for over three days, over 102 degrees. At the
time of the fever there were catarrhal symptoms and in the lungs

we found numerous fine moist rales over the left lung especially
marked at the base. Diagnosis of an influenza pneumonia. Before
and after this attack the temperature and pulse were normal.
Examination—Three cultures extending over a period of five days
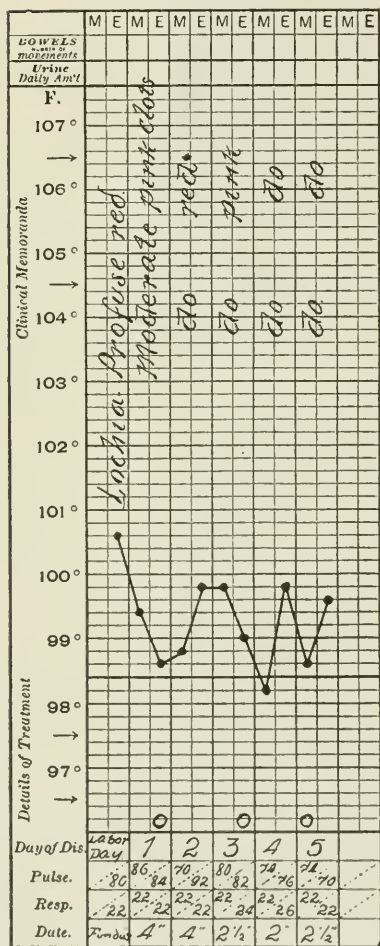
Case X.   Annie C.
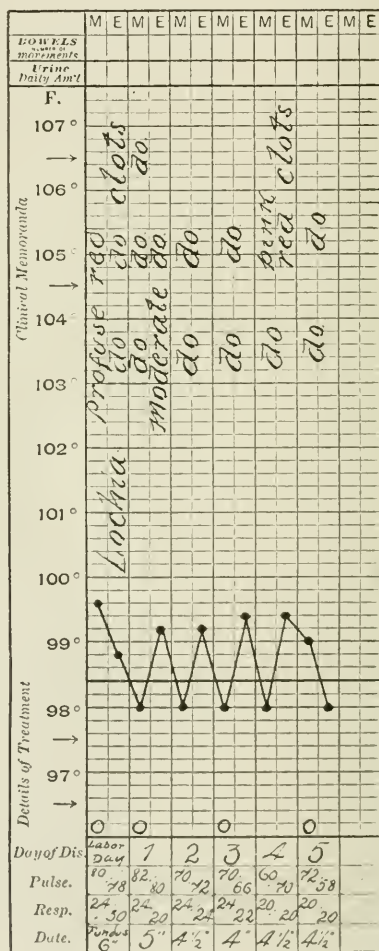
Case XI.   Kate A.

including the time of the febrile disturbance were absolutely nega-
tive. This case is one of the greatest importance, showing the
value of a local bacteriological examination in order to exclude a
local septic infection.

CASE IX.—Kate L., æt. 23. 1-para. Labor normal. Duration first

stage 6 hours; second stage 1 hour and 50 minutes; third stage 10 minutes. Convalescence disturbed by temperature and pulse rise for three days due to a grippe infection. While there were no positive symptoms present, yet the presence of this disease in the
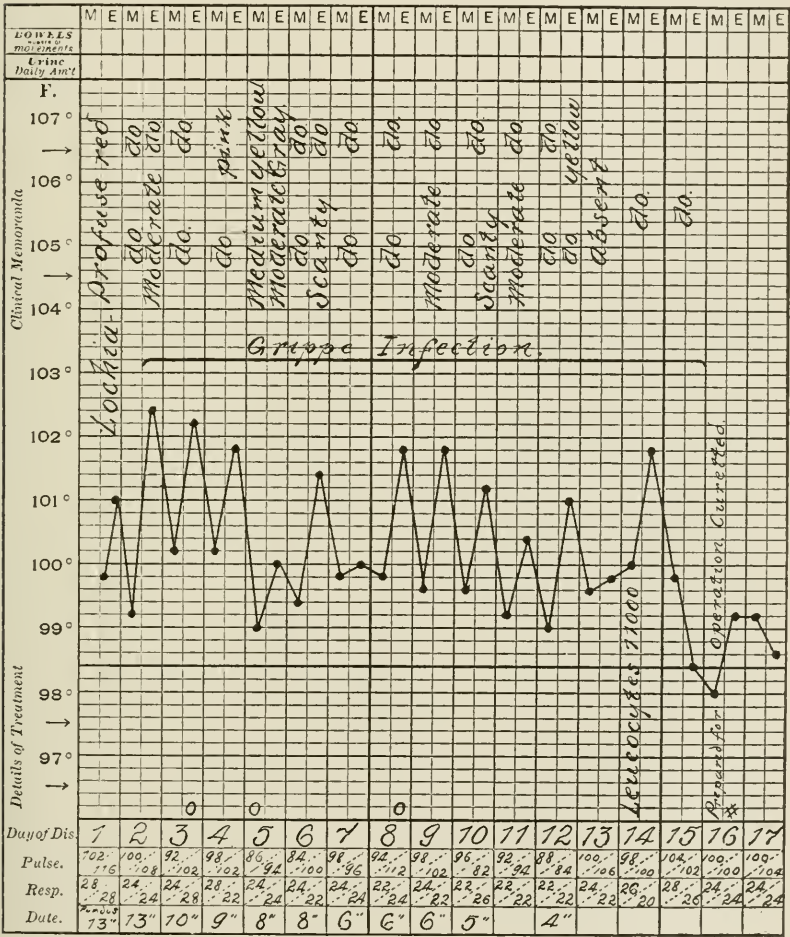
Case XII. Nellie M.

wards and the absence of a local disturbance led us to this diagnosis. This was further certified to by our culture tests five in number taken over a period of nine days—the last four of which were negative, while the first was positive, probably owing to contamination. It is of importance to remember that during the active

period of the influenza the cultures were negative and this again has an important bearing on the subject before us for discussion.

Case X.—Annie C., æt. 28, II-para. Labor normal. Duration first stage 1 hour and 40 minutes; second stage 10 minutes; third stage 10 minutes. Convalescence normal. Highest temperature 100½. Pulse 92. Examination, three cultures extending over a period of five days, negative.

Case XI.—Kate H., æt. 30, II-para. Labor normal. Duration first stage 6 hours and 40 minutes; second stage 5 minutes; third stage 35 minutes. Convalescence normal. Highest temperature 99½. Pulse 82. Examination, four cultures extending over a period of five days, negative.

Case XII.—Nellie M., æt. 19, I-para. Labor normal. Duration first stage 13 hours and 50 minutes; second stage 1 hour; third stage 25 minutes. Convalescence very much disturbed and protracted for twenty days because of sub-febrile temperatures. The temperatures were ushered in almost immediately after the birth of the child and continued without being influenced by treatment. The fever was at no time over 102 nor was the pulse ever excessive. The involution of the genitals was at all times normal even as to the character of the lochial discharges. Every possible source of infection was eliminated and the patient's general condition was carefully looked into. The relatively low pulse and the good condition of the patient led us to suspect a sapremia pure and simple, yet careful examination of the interior of the uterus after a preliminary divulsion revealed nothing in the inside of that organ. The blood count showed nothing abnormal—the leucocyte count was 11,000. We were inclined to look upon this case as one of protracted grippe infection, especially since four cultures extending over a period of sixteen days were reported as being negative. Without more than purely expectant treatment the patient gradually returned to a normal condition at the end of the 21st day. This case was in the hospital wards at the time of the influenza epidemic.

Case XIII.—Mary L., æt. 30, VIII-para. Labor normal. Duration first stage 8 hours and 55 minutes; second stage 15 minutes; third stage 15 minutes. Convalescence disturbed by temperatures and pulse rise for three days preceded by the well-marked symptoms of an acute grippe. On the second day there occurred a slight but pronounced chill followed by some uneasiness in the chest. At this time the patient had a temperature of 103 degrees and a pulse of 102. Examination of the chest revealed dry râles over a small

area in front and to the left, while over the right lower lobe there were flatness on percussion and bronchial voice and breathing over a small area. A diagnosis of a dry pleurisy was made and in three days convalescence was established. Before and after this com-
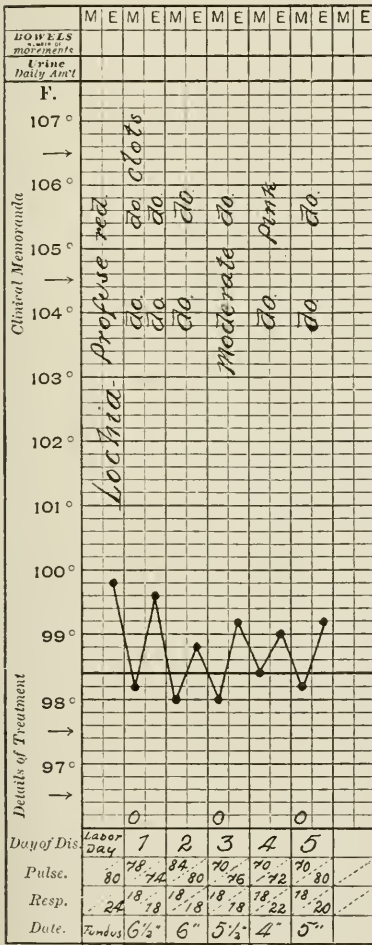
Case XIII. Mary L.
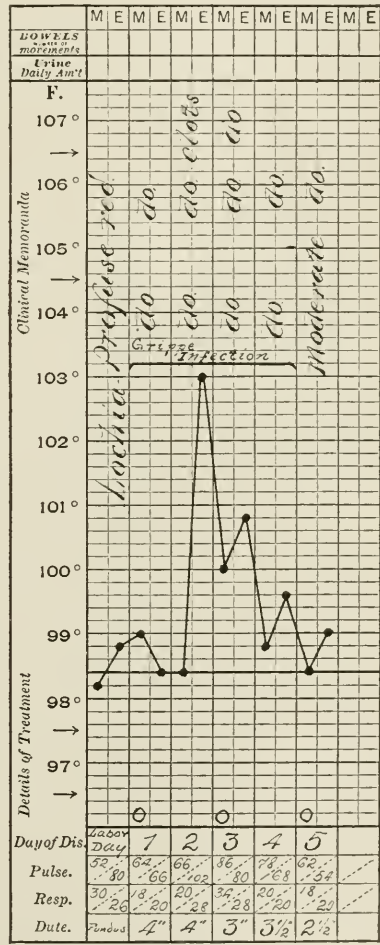
Case XIV. Ellen H.

plication both the pulse and temperature were normal. Examination—three cultures taken over a period of five days were negative.

CASE XIV.—Ellen H., æt. 30, III-para. Labor normal. First stage 10 hours ; second stage 1 hour ; third stage 15 minutes. Con-

valescence disturbed by grippe infection for the first six days. Temperature rose on third day to 103°, then came down slowly until the sixth day, when it approached the normal. Disease ushered in by chill. Pulmonary symptoms marked. In front and on left side, dry râles. Right lower lobe behind, evidence of a mild
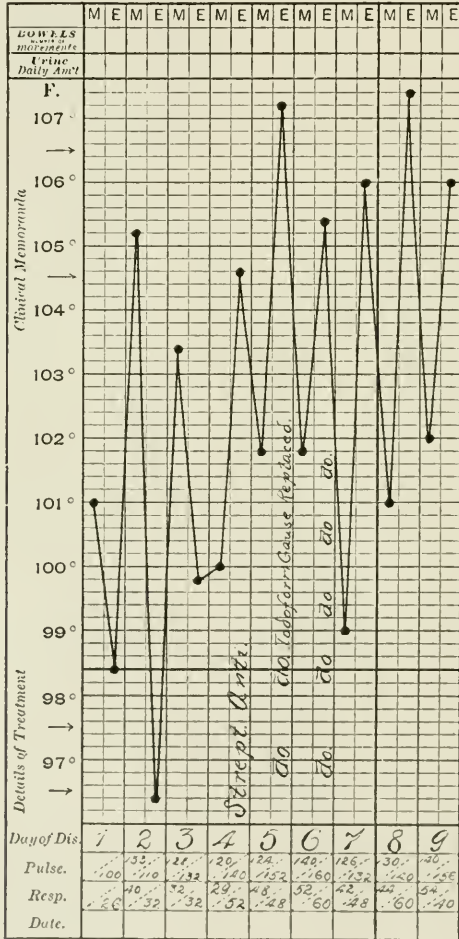
Case XV.   Lottie G.

broncho-pneumonia. Highest temperature 103°, pulse 102. Examination of three cultures extending over a period of five days, all negative.

CASE XV.—Lottie G., æt. 22, I-para. Labor complicated. Dura-

tion first stage 41 hours and 10 minutes; second stage 5 minutes; third stage 5 minutes. Convalescence. Pyemia and death. History of the case. Family and previous history negative. At the end of a normal pregnancy labor ushered in with the rupture of the membranes while the cervix was still hard and rigid. Head engaged, presentation and position normal. Pains continued without any effect upon the os even at the end of forty hours in spite of morphine and chloral. At the end of this time, the discharge from the uterus became very foul and had a decided fecal odor. Os admitted one finger. Fetus alive, pulse 160. Contraction ring plainly visible and at the umbilicus. Temperature 102 degrees. Pulse 100. Manual dilatation was now performed, axis-traction forceps applied, and a living child delivered. Secundines removed manually. The latter had a marked putrescent odor. The endometrium exfoliated in large masses. To get rid of this the uterus was curetted with a large blunt curette and tightly packed with iodoform gauze, my object being to stimulate the uterus to contraction, and by the iodoform to limit the sepsis. A culture taken at the time was examined by the pathologist, who reported the presence of colon bacilli and streptococci pyogenes. It became evident to me at this time that we were dealing with a case of profound sepsis and because of the intrapartum infection, the distinctly fecal odor of the discharge and especially because of the presence of the colon bacillus in the culture from the uterus I ventured the diagnosis of a communication between gut and uterus and advised an immediate extirpation of the entire organ. My colleagues did not fully agree either with the diagnosis or with the need of such heroic measures. The patient was treated by all known methods, including the much praised serum injections, but she went from bad to worse and died with all the symptoms of an acute pyemia.

The autopsy findings are of the greatest interest, but this is solely centered in an examination of the abdominal cavity.

Intestines.—Large. Recent adhesions between omentum and colon. A portion of the descending colon which lay in contact with the uterus was adherent to that organ and deeply ulcerated. A large fistulous tract, sloughy and gray, extended down to the mucous membrane of the gut, but not into its calibre.

Uterus.—Large. An indurated ulcer on the upper and posterior portion was apposed and adherent to the colon just above the sigmoid flexure. The ulceration extended through the peritoneal coat and slightly into the muscularis. Pus in both wall and cavity of the organ.

In commenting upon this case one can readily see the value of an early and careful bacteriological examination, for without such I could hardly have been enabled to have strenuously advocated so heroic a measure as a total extirpation of the parturient uterus so soon after labor. The result might have been the same, but it has been my firm belief that if such an operation is to be undertaken with any prospects of success it must be done early, at the time when the sepsis is still limited to the uterus ; for when once the poison has become general it has always appeared to me the height of folly to attempt to cure by any such form of operation ; in other words the time has already gone by when a hysterectomy will cure a case of general sepsis.

In analyzing our cases, fifteen in number, with the total of forty-eight bacteriological examinations we have one positive result which warranted us in making a diagnosis of puerperal sepsis. This is further proven correct by the subsequent course of the illness and by the characteristic lesions. Among the remaining forty-seven examinations in fourteen women we have only two positive reactions. These might and can be explained away on the ground of an error in technique. If this be allowed we have a negative result in all but one case, and as this case was a pronounced one of sepsis from the start we can for the present exclude it from our list. Thus under these conditions our negative findings are 100 per cent. But for purposes of conciseness we will admit that the positive results were not due to error, but that they represented the actual bacteriological conditions in the inside of the uterus ; this would result in our having a negative result in forty-five cultures as against two positive ones. This amounts to a little more than 4 per cent. certainly a very much lower percentage than that reported by other authors. How can this discrepancy, whether real or apparent be explained away ? Doederlein was the first investigator who three years ago made systematic examinations on the puerperal uterus. At that time he stated that the normal uterus under these conditions was free from pathogenic organisms. In a later communication he obtained somewhat different results, for in 250 examinations of normal puerperal women he found 207 sterile. Consequently 43 positive results. This did not deter him from claiming that physiologically the uterus is not the habitat of pathogenic germs, for he states that while these 43 patients were not clinically ill, they were "nicht ganz normal ;" that is, not entirely normal. Wormser as a result of 100 examinations, the cultures having been taken from the 11th to the 18th

day, reports 84 positive results. This is the highest percentage reported and must be looked upon with a good deal of circumspection and suspicion, since his views as to which patients are to be considered suitable subjects for such investigations, that is those who are supposed to be free from fever, are not at all in accordance with our opinions, but more of this later. Vogel, on the other hand, admits that his cultures were all taken in the late puerperal period, how late is not stated, and in fifteen of such examinations he obtained ten positive results. Schauenstein, who was probably most correct in the selection of his cases, determined that in 100 cases he derived positive results in 64 cultures, but it must be remembered that he only examined the secretion from uteri from the 9th to the 13th day after labor. Franz of Halle, the last man to investigate the bacteriology of the uterus of women free from fever undertook the examination 126 times covering all periods of the puerperal state from the first to the ninth day, and obtained positive results in seventy-one cases. In all of the cases which the various authors have reported they have distinctly stated that the examinations were to be made on patients who were free from fever. Now let us understand what this means. In all our cases we examined irrespective of the presence of temperature rises and so did not restrict ourselves to any particular set of circumstances but took the cases as they arose. Our temperature estimations were all true internal ones and except for the one case of colon bacillus infection and the two or three active temperatures lasting a few days, the temperatures were all at or near the normal. Our positive findings under such conditions were about 4 per cent. Franz in his experiments states that all his patients were free from fever and yet he includes in this category all those in whom the temperature did not go over 38 degrees in the axilla, or in whom there were no local manifestations of sepsis such as a painful or tender uterus or anomalies of the lochial discharges. Doederlein similarly accepts as women suitable for his experiments those in whom the temperatures do not go above 38 degrees in the axilla. Reasoning from these statements they lead us to infer that all these investigations were supposedly done on women free from any septic disturbances. This we cannot agree to since a temperature of 38 in the axilla means a temperature of about 39 degrees in the rectum and for such an excursion of temperature there must be a cause. Experiments upon such women are not experiments upon afebrile women as the various authors would have it. It is just as likely that the reason for their very large positive findings

is the fact that they were dealing with cases of mild septic infections because of this irregular and loose interpretation of what constitutes a normal afebrile condition in the puerperal woman. In any case to judge of the condition of the puerperæ by the temperature curve alone is absolutely fallacious, since it is a well-known fact that the severer the sepsis, the lower is the temperature and vice versa. In a true estimation of the value of the bacteriological tests we must take into consideration not alone the temperature of the patient but also her pulse, her general and local condition from every possible standpoint. This may be the one source of error in most of the published cases. If I mistake not nearly all of the authors mentioned above take this question of temperatures into consideration; for Doederlein and Winternitz state that patients in whom the temperatures are sub-febrile, that is from 38 to 38.5 degrees, give a much higher percentage of positive results than those in whom they are lower. Wormser also states that women with axillary temperatures of 37.6 to 38 degrees yield a very high positive result; thus among 26 women with these temperatures only one had sterile lochia.

Franz whose temperature curves are all estimated by axillary measurements, consequently very uncertain and unreliable, states that when axillary temperatures range between 37 and 37.5 degrees he obtained 51 positive as against 31 negative results. On the other hand an increase of temperature up to 38 degrees (axilla) gave 20 positive and 18 negative results, that is, almost 100 per cent.

The more nearly normal the temperature the smaller per cent. of positive results and once the fever has a tendency to assume the sub-febrile type there is an enormous increase of positive results. This all tends to show the possibility of an infection having arisen. Thus to quote absolute figures from the work of Franz:

Temperatures from 37 to 37.5—46 positive, 21 negative—2.2 :1
37.6 to 38 degrees 17 positive, 16 negative—1.1 :1.

Thus we can at least surmise that our very much smaller percentages of positive results (about 4 per cent.) as compared with those obtained by the various authors is more than likely due to the fact that our cases while much fewer in numbers were much more carefully observed as to pulse and temperature. This enabled us not only to exclude cases of possible septic infection but to give our results in women who had no disturbances that could be attributed in any way to complications directly due to puerperal infections. We must, of course, exclude the one case which gave

the single positive reaction and was followed by all the symptoms of profound septic infection.

Again in the cases observed by us we embraced that period for our bacteriologic tests, which is the most critical period for septic infection, namely from the time of delivery through the first five or six days. This for practical purposes is of greater importance than the examinations made by some of the authors quoted above. Thus Franz is the only one who included in his cases all those from the very beginning of the puerperal period. On the other hand, Wormser undertook his researches on women from the 11th to the 18th day; Vogel simply states "at a late period," but the exact time is not mentioned; while Schauenstein made his examinations from the ninth to the thirteenth day. At this late time the puerperal uterus begins to be well involuted and it is more than likely that these patients have been subjected to more or less interference such as douching and so forth; so that a contamination is more likely than not to have occurred. Contamination having taken place, the uterus is enabled to check the further absorption of these bacilli and cocci or their toxines because of the organization of the thrombi in the sinuses and the condition of the lymphatics, consequently they are in position to do but little harm to the system at large. Thus this may be a reason why the positive cultures were obtained in such large numbers late in the puerperium. As the result of our own personal investigation we are now able to answer the first question put at the commencement of this article. Is the puerperal uterus a sterile organ?

In answering yes to this question we feel that we can do so after having analyzed our cases pretty thoroughly from all standpoints. If our bacteriological tests can be depended upon to give us the true condition of the inside of the uterus we are of the opinion that the puerperal uterus is sterile. As the result of our carefully conducted examinations we report but two positive results and these might be excluded if necessary on the grounds that they were the result of a possible contamination. But to be absolutely fair in the whole matter and for purposes of scientific deductions we are willing to admit that these two positive results are true ones and not accidental. Thus it resolves itself into a question of figures, and therefore, we can show that for practical purposes the uterus is a sterile organ because our negative results were 45 as compared to two positive ones, in the examinations conducted during the early puerperal period, i.e., within six days.

In answering the second question : In what way does the dis-

covery that a uterus is free from bacteria influence or assist us in diagnosing a non-septic condition? It must be and is admitted by many men in position to know that a routine bacteriologic examination of the contents of the puerperal uterus is utterly out of the question with those who most frequently come in contact with cases of septic infection, namely, the great mass of general practitioners, for too many and evident reasons; and yet this scientific proof is in the very largest majority of cases absolutely unnecessary since in most of the women with septic infection the lesions are but too plain; making the diagnosis of the condition one of the greatest ease. Inasmuch as we feel that sepsis arising autogenetically is a condition of the greatest rarity and further that puerperal sepsis pure and simple always arises from a lesion situated at some point or other in the genital tract, a diagnosis by touch or sight is nearly always possible. When such a diagnosis cannot be made by these ordinary means at our command we can almost always come to a conclusion by a process of exclusion. It is always safe to look upon all disturbances in the puerperal state that cannot be otherwise positively placed, as belonging to the broad category of puerperal septic conditions, at least, until we are in a position to absolutely exclude them. This we think is safe teaching. But speaking from the narrow scientific standpoint we feel that bacteriology offers us a very useful field in diagnosing those few cases that will not admit of a diagnosis by other and simpler means. We speak here of and refer to sepsis of the uterus only. From theoretic teachings we must all admit that sepsis, and I do not wish to have this term confused with an entirely different one—sapremia—cannot occur without the presence of disturbing pathogenic germs. This being admitted it must of necessity follow that they can be found and cultivated if the proper means are used for this purpose. We have on several occasions availed ourselves of this method and have always come to a satisfactory conclusion one way or the other, whether positive or negative; for we have always felt that the absence of bacilli was of as much importance as their presence, since it helped us to exclude a sepsis of the uterus; thus to prove this we only cite the cases of grippe infection reported in this series of cases. In two of them while the general symptoms were pronounced enough to warrant us in agreeing as to the condition which was actually present we yet made, for scientific purposes, repeated cultures until we were satisfied from the negative results that no local infection existed.

In the third supposed grippe infection, while the general symp-

toms were absolutely non-characteristic we could, by a process of systematic intra-uterine cultures carried over a period of many days, absolutely exclude an intra-uterine sepsis. In the only case of profound sepsis we had to deal with, the bacteriologic examination of the contents of the uterus immediately after the termination of the labor not only placed us in the position to diagnose that uterine sepsis was present but also enabled us to state with positiveness the variety of bacillus which gave rise to the grave disturbances, and this might have materially influenced our method of treatment. Thus so far as we are concerned we feel that a systematic examination of the contents of the uterus from the standpoint of bacteriology is a very useful procedure whose field of application is very small—limited to those cases in which one is unable to make a diagnosis by other means ; and further limited to those cases in which the cultures can be made by one who is an expert in this line of work.

We wish to lay especial emphasis upon this last statement. We beg leave to finish the discussion of our second question by appending three possible deductions :

1. The presence of bacteria in the puerperal uterus in the absence of general evidence of a constitutional disturbance such as fever and pulse rise, etc., means the introduction of such bacteria by accidental contamination.

2. The presence of bacteria in the puerperal uterus accompanied by fever, rapid pulse and other disturbances means in all probability a sepsis arising from the uterus.

3. The absence of bacteria in the puerperal uterus in the presence of general symptoms (temperature and pulse rise) means the necessity of looking for the source of the disturbance in some organs other than the uterus : sepsis from vagina or vulva, or some general disturbance independent of the puerperal condition.

Finally, in answer to question No. 3, as a result of these investigations, how is our treatment of the parturient state to be influenced? We beg leave to submit for your consideration the following remarks :

We approach this subject by studying the genital tract from the standpoint of bacteriology and further by the discussion of the thorough asepsis of those objects that come in contact with this genital sphere. As to the genital tract we have attempted as far as lay within our power to prove at least to our own satisfaction that the puerperal uterus is practically a sterile organ.

The second portion of the genital tract to be considered is the

vagina. Naturally its bacteriology bears strongly upon the subject under discussion but cannot be entered into as fully as we should like because it is beyond the scope of the paper. Suffice it to say that from a vast amount of scientific research we must presuppose the larger number of parturient women to have a vaginal secretion which possesses a decidedly inhibitory action upon pathogenic organisms, *i.e.,* streptococci, staphylococci, etc. A secretion which possesses such qualifications obtains in the normal vagina at all times. This secretion is acid to a marked degree, sticky and gelatinous. Its inhibitory action depends upon the presence of lactic acid produced by Doederlein's bacillus. When we find such vaginal secretion present, and this can be determined clinically by sight and touch, we have a vagina that is surgically and aseptically prepared—one that requires no artificial preparation to enable us to conduct labor scientifically. It has been proven beyond the shadow of a doubt that neither the staphylococcus albus and aureus, nor the streptococcus pyogenes nor the bacterium coli commune are to be found in the healthy vaginal secretion of the pregnant woman. Even after accidental contamination with these organisms they retain their virulence for a very short time only. Reasoning from these premises we must admit that the vagina of the healthy pregnant woman is a sterile organ.

But the condition of the third portion of the genital tract, the vulva, is different from that of either the uterus or the vagina. In the very greatest number of women the discharge from this territory contains bacteria which propagate actively especially in the presence of air and in an alkaline medium. The bacteria most frequently found are the staphylococcus aureus and albus and the bacterium coli commune. Thus we are dealing with a region which is decidedly a septic or at least an infective one, just as is the ordinary skin, and must be treated as such according to well known surgical principles. Therefore in the management of an obstetrical case from the modern standpoint we have but one area which must bear the brunt of our energies so as to render it sterile. This is done in the usual fashion by means of both mechanical and chemical agents. This is the limitation of our preparatory treatment so far as the normal woman is concerned; and under these conditions no antepartum douches, no scrubbings, etc., except of the vulva are permissible; for if such means are employed the possibility of the destruction of Nature's safeguards, thereby exposing the patient to infection, is ever present. So firm is my confidence in Nature's ability to destroy every possible pathogenic

germ that may be introduced by operative interference, that when the asepsis of the operator cannot be questioned, no uterine or vaginal douche is ever allowed either before, during or after the operation. The state of affairs is different when from bacteriological experience or clinical demonstration this inhibition does not obtain. Under such conditions the vaginal secretion is alkaline in reaction, profuse in amount, malodorous and purulent. Here we have to deal with a pathological condition which in most cases is a gonorrheal infection. The indication now is prophylaxis and therefore we anticipate the labor by giving profuse and repeated douches; and if, when labor sets in, the discharge is not normal, surgical scrubbings such as are done before a major vaginal operation are distinctly called for. When in these cases, which we can call pathological ones, the labor is prolonged, we are accustomed to administer vaginal douches at short intervals with the hope of destroying or at least inhibiting the action of these pathogenic organisms. In approaching the accouchement of a normal case, we never allow the use of vaginal douches at any time. As far as lies within our power we render the external genitals sterile by thoroughly scrubbing them with soap and water followed by liberal external irrigations of some antiseptic solution. This is preceded by local sponging with diluted alcohol. The strictest attention must be paid to the hands of the examiner; for since we have so forcibly asserted that the healthy parturient vagina is naturally in an aseptic or antiseptic condition, there can be only one source of infection directly or indirectly, and that from the accoucheur and from without. Self-infection is so rare that for practical purposes it hardly has any bearing on the subject before us.

Whether gloves should be employed or not is simply a question of taste: but their use must always be regarded as evidence of a lack of confidence on the part of the operator in hand disinfection. We have never considered their use of very much value as a means of limiting a possible infection. We believe in surgical cleanliness both mechanical and chemical, by what means we care not so long as it be thorough. The method we have always used has been step by step, green soap, 95 per cent. alcohol and 1-1000 bichloride solution. When in recent contact with a septic case a preliminary scrubbing with permanganate and oxalic solutions immediately precedes the ordinary hand disinfection.

Further, in these healthy women, no matter what form of operative treatment has been undertaken, whether the forceps has been

applied or a version done, or for any reason the hand has been introduced into the uterus, we have not for many years allowed the genital tract to be washed out or irrigated for the sole purpose of washing out, or at least of attempting to eliminate or limit the sepsis which under these conditions might have been introduced. We feel that the genital tract of these women is at all times well protected and that only the operator's hand can be the source of infection. If this be clean there can be no source of infection; then why wash out the uterus simply because a clean hand has been introduced into a clean organ? To our minds it is just as fallacious to do this under these conditions as it is to wash out the peritoneum after a clean abdominal section simply for the reason that the hand has been introduced. No one ever thinks of washing out the peritoneum in a clean section; then why wash out in a clean labor simply because the hand has been introduced to remove an adherent placenta? An intra-uterine douche will wash out blood clots and cause a uterus to contract; but we are very much in doubt whether such washings ever can by any possibility wash out any but the germs that lie on the surface. These are the ones that do no harm; those that lie under the uterine mucosa, which situation they reach with great rapidity, are the ones that do the damage and it is these that no form of irrigation can sweep out of the genital tract. We go still further and state that even in the cases that are known to be infected, no uterine douching after labor can be of any service in eliminating the infection and under such conditions it has been our custom to attempt to limit this infection by first causing a firm contraction of the uterus and secondly by the use of a remedy that will be rapidly absorbed and which by its antiseptic properties will destroy the germs that have already been absorbed and lie in the deeper structures of the organ. This end is obtained by the firm packing of the uterus with a reliable iodoform gauze.

THE TREATMENT OF PUERPERAL SEPSIS.*

BY

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In discussing the treatment of puerperal sepsis, a few words must be said in reference to the etiology.

It is no longer held by any one that the streptococcus pyogenes is the only microorganism that can cause severe puerperal sepsis. Fatal cases of puerperal sepsis have been reported in which either the staphylococcus pyogenes aurens,[1] the bacterium coli commune,[2] the bacillus aerogenes capsulatus,[3] the gonococcus,[4] or an undescribed bacillus[5] has been the sole microorganism found. In others again more than one species were met with, showing a mixed infection.

The species of microorganism found therefore in the uterine or vaginal discharges in a given case of puerperal sepsis is no criterion of its severity, and forms no safe guide as to prognosis or as to the treatment to be adopted. In this connection I cannot do better than to quote *verbatim* what Fehling stated in opening the discussion on the treatment of puerperal sepsis at the Fourth International Congress of Obstetrics and Gynecology in Rome, September, 1902 (*Monatsch. für Geb. u. Gyn.*, Bd. XVI. Ergänzungsheft) :

"*The attempt to divide the various forms of puerperal infection bacteriologically cannot be considered thus far as successful. This much is certain, that in numerous cases which have run a normal course streptococci and staphylococci have been found in the uterine cavity, and further, in the severe forms of infection sometimes streptococci, sometimes staphylococci, at other times bacilli coli communis and other bacteria, or mixtures of these, are found, thus demonstrating that the attempt to make a ready*

[1] Struckmann-Karger, Berlin, 1898.
[2] Krönig and others.
[3] Ernst, Dobbin and others.
[4] Krönig, Bacteriologie des Weiblichen Genitals Kanales, Leipzig, 1897.
[5] Birch, Hirschfeld.

and positive diagnosis from a bacteriological examination has thus far been a failure."

Although prominent representatives from every part of the civilized world took part in the discussion, not a single note of protest was uttered against these emphatic statements by Fehling.

It was thought at one time that the bacteriologic examination of the blood would be of value in estimating the severity of an attack of puerperal sepsis and be a guide to operative intervention. Boldt,[1] influenced by Prochownik, stated in a paper on "Indications for Hysterectomy, etc., in Puerperal Infection" that he would consider hysterectomy indicated when "the blood showed the presence of pathogenic germs." Further investigations have shown the utter unreliability of the bacteriologic examination of the blood, either from a prognostic or therapeutic standpoint. Streptococci have been found in the blood of patients apparently not very ill, and who recovered without any operative intervention. On the other hand, the bacteriologic examination of the blood has been negative in cases of most profound sepsis and in those who succumbed to the disease. We are forced to conclude, therefore, from the foregoing that as yet the treatment of puerperal sepsis must be based chiefly upon the clinical history and physical signs of each individual case. No hard and fast rules can be laid down because a certain microorganism is found in the genital tract or in the blood current. The line of treatment to be adopted in a given case must be based upon sound judgment, supported by an extensive clinical experience, and not upon fanciful theories, no matter how plausible they may appear.

Before taking up the subject of treatment in detail I desire to touch upon another phase of etiology. It must be conceded at the present time that conditions exist during the pregnant and puerperal states which may lead to auto-infection. This assumption is borne out by bacteriologic investigations and by the clinical results recorded in most of the large maternities in Europe. Although some discrepancy exists in the bacteriologic examinations of the vaginal and cervical discharges in the pregnant state by different observers, still the weight of evidence is in favor of the presence of pathogenic microorganisms in the genital tract of the pregnant women under certain conditions.

Doederlein in 195 cases found streptococci in 4.1 per cent.

Burckhardt in 116 pregnant women found streptococci in 4.3 per cent.

[1] The New York Medical Journal, Jan. 26, 1901.

Burgerburu in 12 cases found streptococci once.

Williams in 15 cases found streptococci three times.

Vahle in 30 pregnant women found streptococci three times. The same observer found in 60 puerperal women streptococci in 25 per cent. A great many more observers could be quoted to the same effect.

These observations furnish us with the only plausible explanation of the high percentage of morbidity that obtains pretty uniformly in lying-in hospitals that are conducted under the most modern methods of rigid asepsis and antisepsis. They explain also the not infrequent occurrence of septic manifestations, even of a severe nature, in women who have been delivered amid perfectly aseptic surroundings and who had not been subjected to a vaginal examination.

Max Stolz in his recent work (*Studien zur Bakteriologie des Genitals Kanales in der Schwangerschaft und im Wochenbett* Leuschner & Lubensky, 1903), gives a large array of statistics and clinical facts bearing out the above contention.

In Küstner's maternity 529 women in labor were examined with the bare disinfected hand and the morbidity in them was 19.6 per cent. Six hundred and twenty-eight were examined with disinfected hands covered with aseptic rubber gloves and the morbidity in them was 17.3 per cent. Neither was there any noticeable decrease in the percentage of the cases of severe sepsis. In the former case the percentage was 5.5 per cent. and in the latter it was 4.4 per cent.

The results in the operative cases were similar. In 257 operative cases with the bare disinfected hand the morbidity was 35 per cent.; severe cases 15.1 per cent. In 227 operation cases with gloved disinfected hands the morbidity was 33.9 per cent.; severe cases 16.7 per cent.

In Rosthorn's maternity at Graz, in 899 women in labor examined with the bare disinfected hand the morbidity was 39.3 per cent. in 747 women examined with gloved disinfected hands the morbidity was 28.9 per cent. Stolz states that this showing, apparently in favor of rubber gloves, loses its force when a comparison is made with the puerperal women in the maternity during the same period who had not been subjected to any vaginal examinations. The morbidity among these during the first period— the period during which the examination was made with bare disinfected hands—was 38.7 per cent.; in the second period—the period of gloved disinfected hands—it was 27.7 per cent. It will

thus be seen that the reduction in morbidity could not have been
due to the employment of the gloves, but to some other factor
which influenced the morbidity in the non-examined puerpera.

Notwithstanding that the morbidity in these lying-in hospitals
is high, the mortality is exceedingly low. In the Graz maternity
it was 0.11 per cent. and 0.26 per cent., respectively, for the periods
above mentioned. This percentage of mortality corresponds in
the main with that of the other large European maternities.

We have no reliable data of the morbidity in puerperal cases
in private practice, but we do have knowledge of the comparative-
ly high mortality from puerperal sepsis in that class of practice.
How are we to explain the great difference in the mortality rate
of lying-in institutions and of that of private practice? Doubtless
the faulty technic in asepsis often observed in private practice
plays an important factor. But this, to my mind, is not sufficient
to account for the vast difference in the mortality rate. The ex-
planation to me is not difficult to find.

In public practice the patients are carefully observed, and as
soon as there is the slightest elevation of temperature, the patient
is assumed to be septic unless some other cause is found to account
for the fever. The proper treatment is instituted at once, be it
merely an irrigation of a perineal or vaginal wound, an intra-
uterine douche, the removal of any retained secundines, etc.

In private practice just the opposite as a rule obtains.

Such a dread has the attending physician of acknowledging that
the patient has any fever that in many instances the temperature is
not taken at all, or if it is and it shows any elevation, an endeavor
is made to explain it away on the score of "filling of the breasts,
nervous excitement," etc., and the probable real cause—septic in-
fection—is kept in the background. It is only when the patient
becomes seriously ill and concealment is no longer possible that a
consultant is called. It is in this way that a slight infection has
been allowed to develop into a dangerous one through fear on the
part of the medical attendant—a feeling which is quite natural in
the present attitude of mind of the lay public in reference to the
etiology of puerperal sepsis.

This attitude of the lay mind has been created by the profession
itself, and to a degree it has done so rightly. But the pendulum,
it seems to me, has swung too far in the one direction. Is it not
high time that an effort should be made to bring it back into a
median position from the extreme one it has fallen into? Medical
teachers and authorities, while they should not abate one iota from

the importance of rigid asepsis and antisepsis in the care of a case of labor, should come out openly and frankly confess that in spite of these precautions puerperal infection may occur, and does frequently occur, even in their own hands. I am strongly convinced that if we could remove the element of fear on the part of the attendant by creating a normal and healthy view in the mind of the lay public, we would not meet in consulting practice so many instances of neglected cases of puerperal sepsis.

I feel confident that the result of the propagation of such views would be a marked decrease in the mortality rate of puerperal sepsis in private practice.

There is no room for any difference of opinion, nor is there any as far as I know, as to the necessity of cauterising with some antiseptic and the maintenance of free drainage of infected wounds of the perineum, vulva or vaginal tract in the puerperal woman.

The same harmony of opinion exists in reference to the advisability of removing from the uterus any retained placental or decidual tissues when they are infected and are giving rise to symptoms.

It is only in the selection of the method that any difference of opinion exists. Some would never use anything but the fingers for this purpose, and they condemn in the strongest language the employment of a curette, be it dull or sharp. They argue that in using the curette the so-called "protective zone" is disturbed with the result of the spread of the infection.

I have so often pointed out the fallacy of such reasoning that it seems superfluous to do so again. The "protective zone" was first described by Bumm in the scrapings obtained by curettage. It occurs only in the milder cases, all of which get well after a curettage, as did Bumm's cases on whom the observations were made. Of course an inexperienced person could do great harm with a curette, but I doubt very much if he would do less harm digging into the uterine wall with his fingers. However, it makes very little difference whether the finger or the curette is employed, so long as the residual tissues are thoroughly removed. As far as I am concerned I know I can do this to the best advantage and with the least traumatism by the combined use of the finger and the sharp curette. It must not be forgotten that in many instances of retained placental and decidual tissues the cervix may be fairly tight and will not readily admit even one finger. This is more likely to occur when the retained products are situated high up in the cavity, or as is often the case, in one of the uterine cornua. In these cases involution progresses normally at the lower

uterine segment, with a consequent early closure of the cervix. Nothing short of the curette can accomplish the desired result in those cases.

In those exceptional cases of adherent and sloughing placental residue that cannot be removed either with the finger or sharp curette hysterectomy is indicated, providing the patient is not already moribund. Such cases have been reported by B. S. Schultze, A. Sippel and myself. In my second case there was also inversion of the uterus, but so intimately adherent was the placental tissue to the uterine wall that the true nature of the case was not evident until almost the entire uterus with its adherent placental tissue was removed piecemeal *per vaginam*. Although the patient was in a desperate condition, as soon as the sloughing mass was removed, she began to improve and made a rapid and uneventful recovery.

There is not now any dissension of opinion as to the indication of extirpation of the uterus in such cases.

The same uniformity of opinion exists regarding the indication of hysterectomy for puerperal sepsis due to a submucous sloughing fibroid.

There is a third group of cases in which the uterus, as a result of infection, is studded with small abscesses. Every one is agreed as to the advisability of extirpating the organ in such instances. But the difficulty that is encountered here is in making the diagnosis. In the successful case that I have reported I drew my conclusion that the uterus was the chief source of trouble from the absence of any perineal or vaginal wounds, from the absence of any exudate or enlargement of the adnexa, and from the fact that the uterus was large, doughy and flabby and lay like an inert mass in Douglas' cul-de-sac. I could readily pass my hand into the uterus and found it to be empty. The patient lay in a partially comatose state, having one or more severe chills in the 24 hours with a temperature rising to 106° after each chill and with a pulse which was constantly ranging from 150 to 160 per minute.

The number of such cases on record is too few as yet to enable one to make any deductions, or to lay down any rules as to how they are to be diagnosticated. It is only by close observation of a given case, and by a process of exclusion, that one may arrive at a probable diagnosis.

In a fourth group of cases the infection of the uterus may result in one or more purulent foci of moderate or considerable size in the uterine wall. When the purulent focus is situated below the

reflection of the bladder peritoneum in front or below the perito-
neal fold behind, or at the sides of the uterus between the folds
of the broad ligament, an expectant plan of treatment is advisable,
for such collections usually either break into an adjacent hollow
viscus, or as a rule grow in a direction in which they are easily
approached and evacuated.   If the purulent focus be situated in
the upper part of one of the broad ligaments, it is well to wait with
surgical intervention until the mass has probably formed adhesions
with the abdominal parietes.   When this has occurred the evacua-
tion of the abscess, if not always easy of execution, is practically
always unattended with any danger.   When it is not advisable to
wait for such an opportune time, owing to the general condition
of the patient, it is more prudent, to my mind, to first make a
median abdominal incision for the purpose of inspection and to
judge as to the best method of evacuating the purulent collection
without the risk of soiling the peritoneum.   For it must be borne
in mind that the pus in these cases is generally very virulent, and
any accidental contact of it with the general peritoneum may lead
to a fatal peritonitis.

In a fifth group there may be a solitary abscess in the uterine
wall not situated in any of the sites above stated, as in cases re-
ported by Hirst, Leopold and myself.   The proper treatment in
these cases is excision of the abscess sac and drainage, without
sacrificing the uterus.   In my case not only did the woman make
a good recovery, but she afterward gave birth to a child at full
term.   These cases are diagnosticated, as a rule, by the course of
the fever and by the detection of a mass which, as a rule, is mark-
edly tender at either horn of the uterus or in its posterior or an-
terior aspect, some distance above the vaginal junction.

I take it that what I have said up to the present time in reference
to the indications for hysterectomy for infections at the puerperal
period would meet with pretty general assent.   But I am now to
take up a class of cases the treatment of which has excited the
keenest discussion, especially in reference to the question of hys-
terectomy.

I have reference to septic endometritis or infection of the pla-
cental site when the symptoms steadily grow worse in spite of ap-
propriate general treatment and the infection is still limited to the
uterus.   I am convinced that septic puerperal endometritis is very
rare unless as a complication of retained placental residue.

If the proper treatment—emptying the uterus—be instituted
early in these cases, the question of hysterectomy would never need

to come up in them.   I am ready to confess that I have had such cases even in my own practice, and have always been able to bring about a recovery by an early curettage, followed up by frequent intra-uterine irrigations, by the free administration of whiskey, by giving the patient plenty of nourishing food, using the wet pack or cold sponges when necessary to reduce fever, and subcutaneous intravenous saline infusion; in short, the usually accepted treatment for general sepsis.   But if these cases are neglected at the outset, the above line of treatment may fail and the patient, instead of improving or holding her own, gradually grow worse and finally succumb to her infection.   I am aware that it happens occasionally that a case apparently growing worse and in whom the outlook may be unfavorable to a degree, will nevertheless recover without any other treatment than that outlined above. But the majority of them die within a variable period of from 10 to 40 days or longer.   The point at issue is whether some of these cases cannot be saved by a timely hysterectomy.   I recognize the difficulties that beset the question, and agree with one of the speakers at the recent discussion at the Rome congress, who said "to operate too early would be criminal, to operate too late would be useless."   Are we ever able to select the right time?   This will be answered either in the affirmative or negative according to one's own experience.   A negative answer based on the findings on the autopsy table is often given.   But this is not as reliable as it seems.   Advances in surgical treatment have been made more on what has been disclosed on the operating table than what has been found in the post mortem room.

There is one phase of the subject which it seems to me is always forgotten in the discussion.   It appears to be taken for granted that when a patient recovers from the sepsis, she does so with pelvic organs that are fairly healthy.   It is true that she may, but in a large majority of the cases recovery means a prolonged illness in bed with a condition of the pelvic organs that is a constant source of future trouble to their possessor.   It is only a short time ago that a woman consulted me on account of sterility and pelvic pains.   She had had a child 12 years before; the labor was followed by sepsis which kept her on her back for five months. Since then she had been sterile and had been more or less of an invalid.   I found a small uterus fixed in the pelvis, and adherent adnexa on both sides.   What operator has not been tempted by the importunities of the patient for relief from her sufferings dating back several years to open the abdomen under the above condi-

tions, only to find that the case was practically an inoperable one? How often again is it that one sees uteri removed for chronic metritis as a result of an attack of puerperal sepsis many years before, and which ended in the so-called recovery!

In my opinion all these things should be borne in mind in dealing with a case of severe uterine sepsis, and while one should be guided by the principles of conservatism in the treatment, one ought not to carry the principle to that exaggerated extent when it no longer serves the purpose of conserving the health and the pelvic organs of the woman, but works in the very opposite direction, that of destroying the pelvic organs and making the woman an invalid for the future.

When hysterectomy is deemed indicated, the abdominal route, in my opinion, is to be preferred to the vaginal route for the following reasons:

(1.) In uterine sepsis the broad ligaments are frequently infiltrated, and a larger portion of the ligaments can be cut away when operating from above than when operating from below.

(2.) Patients with severe sepsis can withstand a major operation remarkably well, providing there is no great loss of blood, and as a rule in these cases there is likely to be less hemorrhage when the operation is done through an abdominal incision than when it is done by the vaginal route.

Statistics thus far are decidedly in favor of the abdominal operation. Fehling (*Monatsch. für Geb. u. Gyn.*, Oct., 1902. *Ergänzungsheft*) collected 61 cases of hysterectomy by 53 different operators in Germany, Austria and Switzerland. There were 19 abdominal total extirpations with a mortality of 31.5 per cent.; 33 vaginal hysterectomies with a mortality of 69.6 per cent., showing that the mortality from the vaginal route was more than double that from the abdominal route.

Jewett (*American Gynecology*, Feb., 1903) collected 62 cases in which it was stated that the route was through the abdomen with a mortality of 38.7 per cent., and 25 cases in which the route was through the vagina with a mortality of 52 per cent.

It must be admitted, however, that a collection of cases such as both these authors give is not very decisive. The number of cases is too small and the operations were performed by too great a number of men. Further, the character of the cases was too variable, and again in many of the abdominal cases a supra-vaginal amputation only was done. In my opinion, if hysterectomy be indicated, the whole uterus should be extirpated, both for the

purpose of removing all of the infected area and for drainage of the stumps of the broad ligaments, which, as already stated, are usually infiltrated and in consequence must ultimately break down. In two of my successful cases there was considerable suppuration of the stumps of the broad ligaments, and had there been no drainage provided for, I feel confident that the patients would have died from secondary infection.

The infection may extend from the uterus to one or other tube, setting up a violent grade of salpingitis, which in turn may cause a general peritonitis. Where there are evidences of such extension, shown by sudden onset of severe pain in the iliac region, by the development of a tender mass to one or other side of the uterus, and by the acute exacerbation of temperature, the abdomen should be opened without delay and the affected tube removed before a general peritonitis develops.   In a case of this kind that I reported[1] I opened the abdomen within six hours after the onset of the above symptoms.   I found the tube presenting an appearance not unlike a gangrenous appendix.   The affected tube and corresponding ovary were removed and the stump drained.   The patient made a good recovery and has since given birth to a child at full term, the puerperium being perfectly normal.   Any one who could have seen the tube after its removal would not have doubted that the operation was a life-saving one any more than he would if he had seen a gangrenous appendix which had been removed by an operation and the patient had recovered.   Delay in cases of this nature certainly cannot claim the principle of conservatism.   For even apart from the risk (which is very great) of an extension to the general peritoneum and the setting up of a general peritonitis, there was nothing to be gained by waiting, as the tube and ovary were already hopelessly destroyed.

A case running a somewhat similar course was reported by A. Pourtales[2] about the same time from Bumm's clinic.   But as the operation was deferred for several days after the symptoms showed an extension to the right adnexa, the patient was practically moribund when the hysterectomy was performed and died a few hours afterwards.

In some cases the microorganisms rapidly penetrate the uterine wall and set up a peritonitis, which usually becomes general in the course of a very short time.   As a rule these cases run a rapidly fatal course; still, a case may occasionally be saved by an early

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[1] The Medical News, March 25, 1899.
[2] Archiv. f. Gynäkologie, Bd. 57.

abdominal section, with copious irrigations of the peritoneal cavity and free drainage. I was able to save one case in which there was evidence of a peritonitis which seemed to be general. No culture was made of the turbid serum found in the peritoneal cavity. In a second case following an abortion, the peritonitis seemed to be of the most acute variety; the peritoneum was of a deep red color, the coils of intestines were slightly adherent to one another and liberally covered with flakes of lymph. I opened the abdomen, wiped away the flakes of lymph from the intestines as well as possible, irrigated the abdominal cavity with several gallons of sterile saline solution, and the patient made a good recovery. The clinical evidences were very strongly in favor of its being a gonorrheal infection; the husband was suffering from acute gonorrhea, and the woman had had a copious purulent discharge prior to the abortion. In a third case following labor at full term, and in which the peritoneal fluid contained abundant streptococci, the patient died although the same line of treatment had been followed.

Zweifel had two cases of recovery from diffuse puerperal septic peritonitis upon which he had operated, but because they recovered he doubts whether they were of streptococcic origin. He thinks they may have been due to the gonococcus. The important point in operating for diffuse peritonitis is to be able to select the right time. In the early stages of so-called general peritonitis the entire peritoneum is not involved. This occurs by gradual or rapid extension, as the case may be, and may take from one to four days, and even longer, for its establishment. If the case can be operated upon within say 24, 36, or 48 hours after the onset of the peritonitis there may be some hope of success. But if sufficient time has elapsed for the entire peritoneum to become affected, I do not believe the case can be saved, let the method of treatment be what it may. It is not possible always to differentiate at the bed side (nor even when the abdomen is opened) between a general peritonitis which is still incomplete and one that is complete. A practical point that I have learned for myself, is to note the behavior of the alæ nasi; when they recede and expand very noticeably and rapidly, and the respirations are above 50, I look upon the case as one of complete general peritonitis with a fatal prognosis.

Some cases of puerperal sepsis are very obscure. Repeated vaginal and bimanual examinations fail to find any pelvic or abdominal lesions. Now, when such a case is gradually growing worse in spite of the most approved treatment for general sepsis, the temptation is very strong to open the abdomen for exploratory

purposes with the view of finding some hidden purulent focus or a circumscribed slough of the uterus. I recognize this is dangerous ground to tread upon, and such advice is subject both to misrepresentation and to abuse. I followed it in one case. The patient had been seriously ill for weeks, and was apparently getting better, then grew worse again and for the second time recovery apparently set in. She was about ready to leave the hospital when she was again seized with a severe chill, followed by high fever and pain in the lower part of the abdomen such as she had had before. When this attack showed no signs of improvement in the course of three or four days, I decided to perform an exploratory laparatomy. This proved to be practically negative, although I removed the left ovary, which was double the normal size and edematous. I closed the abdomen. The patient's condition continued the same. A few days later she passed a moderate amount of pus with her urine; the fever promptly subsided, and the recovery now was rapid and permanent. She did have a purulent focus, evidently in the uterine substance below the reflection of the bladder peritoneum. I overlooked it on account of its situation. In the future, under similar conditions, I would bear in mind this possible location of a purulent collection.

Acting on the assumption that sepsis during the puerperal period has very much in common with sepsis occurring at other times, and should, like the latter, be treated on the general principles of surgery—a contention for which I have often waged battle—a distinguished German surgeon (Trendelenburg) conceived the brilliant idea (and executed it with success in a case) of ligating the uterine and spermatic veins when they became the seat of thrombotic infection in puerperal sepsis, or in other words, puerperal pyemia.

Trendelenburg was led to devise this procedure by noting the findings in autopsies on cases of puerperal sepsis at the Leipzig Pathological Institute. In 43 fatal cases in the course of two years the cause of death in 21 cases was found to be pyemic thrombosis of the uterine and spermatic veins. In only 4 cases out of these 21 cases was there a lymphatic infection combined with the venous infection. Trendelenburg reasoned that in these cases the conditions were not unlike those that obtain in pyemic thrombosis of the transverse sinus following purulent otitis, and in which ligation of the internal jugular vein has been attended with such good results.

A similar idea occurred to W. A. Freund[1] as early as 1898 on witnessing the demonstrations of von Recklinghausen of cases of puerperal pyemia in which the septic thrombosis was limited to the spermatic vein and its branches. He accordingly operated upon two cases, but both ended fatally and at the autopsy it was found that in the one case the process extended to the vena cava inferior, and in the other case the process was not limited to the spermatic vein. As a result of these experiences, and recognizing that severe cases of pyemia recover after months of severe illness —though it be often with loss of limbs—Freund did not feel justified in advising the operation excepting in cases of pyemia following an unclean or criminal abortion, as he had never seen a woman recover from such a condition. In these cases he thinks the uterus also should be removed.

Trendelenburg thinks that Freund, as well as Bumm, made an error in not recognizing that the uterine vein is affected as often as, if not oftener than, the spermatic vein. In the Leipzig statistics the uterine veins were involved 16 times and the spermatic veins only 7 times.

Trendelenburg would diagnosticate pyemic process on the occurrence of a second chill if no good cause could be found for it. I am afraid such an arbitrary rule would not hold at the bed side. But if we are sure that the uterus is empty and there is no evidence of a purulent lesion, and the patient has repeated severe chills with marked remissions in the temperature, the pulse remaining comparatively slow (90 to 110), we are safe in diagnosticating pyemia.

At the Rome congress both Leopold and Zweifel spoke in favor of Trendelenburg's procedure. Zweifel, however, would prefer a median incision so that the veins on both sides could be investigated, and would rather excise than simply ligate the affected veins.

In a case that I had under observation a couple of years ago that was ill for a long time I made the diagnosis of septic thrombosis of the pelvic veins on the right side. The patient was very seriously ill, had repeated severe rigors, followed by high temperature. The uterus behaved normally and involution progressed as it should. There was no pelvic exudate, but I could feel a round, hard cord along the infundibulo-pelvic ligament; the adnexa were apparently normal; there were no signs of peritonitis. At one time during the illness a prominent internist who saw the patient in consultation concurred in my diagnosis of pelvic phlebitis and thought he found

[1]Methoden und Indikationen der Total Extirpation des Uterus. Hegar's Beiträge, Bd. I., 1898, S. 397.

evidences of septic endocarditis. The patient was in a precarious condition for weeks, but finally made a good recovery, the treatment consisting of the usual stimulating and nourishing agents employed to combat sepsis, together with free inunctions of ung. Credé. There were no external metastatic abscesses. There was no bacteriological examination made of the uterine discharge for the reason that when the sepsis became manifest, which was rather late in the puerperium, there was practically no discharge from the uterus. I had reason to suspect a gonorrheal infection, as the husband had suffered from an acute attack of gonorrheal urethritis a short time before the wife conceived, and during the early stages of the pregnancy there was a marked erosion of the cervix, with a copious mucopurulent discharge.

It seems to me that Trendelenburg's procedure, modified in accordance with Zweifel's suggestion, is worthy of further trial. Trendelenburg's experience shows that a case need not be considered hopeless though there are evidences of metastases in distant parts of the body. In his case after the operation there was a metastatic abscess in the left infrascapular region.

It may be appropriate here to say a few words in reference to the use of collargol or ung. Credé. I am in the habit of using the ung. Credé in cases of sepsis when I can find no lesion which demands surgical intervention, or in those cases in which the gross source of infection has been removed by surgical means and the manifestations of sepsis still persist. I have gained the impression from this use of it that it is of some service either in aiding the system to eliminate the toxines produced, or in some way counteracting their deleterious effects. Certain it is that several desperate cases in which the silver salts had been employed by inunction ended in recovery, and it did seem to me that the favorable result was in a measure induced by the inunctions of the silver salt.

Before closing there is one point in my paper upon which I desire to lay especial emphasis, and that is the importance of watching very carefully every puerperal woman who shows the slightest elevation of temperature. If this be done and it be assumed that such elevation denotes sepsis unless some other cause can unmistakably be found to account for it, and the proper treatment be instituted at once, then, in my opinion, it will rarely occur in private practice that a case of puerperal sepsis will be encountered in which any serious surgical intervention will need to be considered. Such practice, in my opinion, would constitute true conservatism.

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UTERINE MYOMAS.[1]

BY

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THERE is no subject of gynecology more full of interest than uterine myomas. I am assured of this from a long experience, both in observing their course under the most varied circumstances, where allowed to go on subject alone to the changes which nature has wrought, as well as through a knowledge obtained, where various methods of treatment, medicinal and surgical, have been instituted.

I shall never forget the admiration that I felt for Dr. J. Marion Sims as I watched the boldness with which he removed a necrotic myoma from the interior of the uterus. This at a time when to invade the cavity of the organ, required just that fearlessness and courage which he possessed to an eminent degree. My memory serves me equally well as I recall with equal admiration the brilliant operations of our beloved Dr. T. Addis Emmet, as he demonstrated to me the effects of traction, in the removal of sub-mucous myomas, as he held me spellbound, cutting away piece after piece of the growth presenting, without hemorrhage, until the whole mass, weighing several pounds, was removed, and this at a time when other surgeons were afraid to attempt any such procedure, even with very small polypoid growths, except by the use of the wire or chain ecraseur, which Dr. Emmet proved cumbersome and unnecessary. At this time Dr. T. Gaillard Thomas instituted the spoon saw in the enucleation of these intra-mural growths, which fulfilled a very useful purpose in some cases.

On account of the necrotic state of the growth in some cases, or the surgical infection of the operator or his assistants in others, the necessity of subsequent drainage was recognized and provision made for the exit or washing away of degenerating portions of the capsule remaining.

In the days referred to, the failure of establishing free drainage

[1] Read before the Woman's Hospital Society, April 28, 1903.

from the uterine cavity, and thus being able to keep the wounded surface clean, probably cost more patients their lives than did hemorrhage from the operation, and led me to write an article on the subject (*Archives of Medicine*, February, 1882), advocating the insertion of a drainage tube, held in place by sutures.

If the history of this early work on myomas could be written, and had the cases been reported with as much honesty and candor as characterized that of our own Dr. George Harrison in his reports of cases, who has always been anxious not only to learn from accidents, but to have others learn as well, the evolution of the operative procedure of these neoplasms might have been more rapid. In other words, scientific progress is often retarded by the withholding of facts known only to the individual.

With the great impetus which came with the adoption of aseptic surgery, there came also a much larger field for observing the more direct course, as well as the indirect effects of these growths, viewed from the intra-peritoneal aspect, and the necessity of attacking many of the smaller myomas when so situated that they gave rise to remote and disturbing symptoms became manifest. Also the substitution of immediate removal of the larger growths, for the more protracted and less effectual methods of treatment through medicinal and electro-therapeutical agencies.

This change in method of treatment naturally came about through the greatly improved surgical technique and the recognition of the underlying principles of antiseptic surgery.

In these days of surgical success I can but feel that there is a tendency to overlook the natural course of these growths which so occupied our attention twenty-five years ago, and that the custom is becoming too general to operate the moment the fact is established of the existence of a uterine myoma, no matter how small, how placed, or what symptoms it gives rise to, and that its importance is greatly magnified in the mind of the patient by the over zealous surgeon. By this I would not be considered to deprecate the operations for this disease, which I am sure are among the most brilliant in the whole domain of surgery, but I would insist upon the more careful study of the individual case, and make sure that the suffering of the patient is occasioned by the said growth and that alone, and then work out the special operation which will leave the uterus and adnexa in the best condition for subsequent usefulness. By such a course we shall prevent much discouragement in many cases, and raise our standard of surgical skill to its appropriate and highest plane, that of saving

or restoring to normal conditions the organs concerned, instead of sacrificing or unnecessarily mutilating them, as well as not infrequently destroying the hope or possibility of future child-bearing in the woman.

In the more recent work of developing and substituting the operation of myomectomy, for the more universal one of hysterectomy, I recognize the good work of Kelly of Baltimore, Dudley of Chicago, and many members of this our own Society, and it is more to insist upon this line and the more careful consideration of the individual case, that I have been led to present the subject this evening.

From my own clinical experience or what I have seen in the experience of others, I believe that myomas of the uterus seldom become malignant and that the opinion too frequently given by the attendant to the sufferer as a reason for immediate operation, that the contrary is the case is too sweeping. My own opinion would not place such malignant change as occurring at a maximum in over five per cent. of the cases. If we can disabuse our mind of this delusion the most important reason for immediate operation will be the exhausting influence of persistent hemorrhage. As myomas are usually of slow growth, the ordinary case will allow abundant time for careful study and determination of the importance of the neoplasm, as a cause of suffering both from direct and indirect influences.

If the inconveniences are slight and the patient is near the climacteric, she may choose to await the natural change, which the atrophy of the uterus is likely to produce in the myoma, realizing the fact that the menstrual life of the individual is likely to be prolonged by a few years by the presence of the growth. The dangers of the operation, however, are so slight in the hands of a skilful surgeon, that it is not advisable to suffer much inconvenience by palliative treatment.

In the choice of operation the surgeon should be governed: First: By the method or route which will give him the most definite knowledge of the myoma, as to its location, size, and relation to surrounding parts; and enable him to manipulate the uterus and adnexa in his search for others, or in the removal of those already known to exist. Second: By the method or route which will enable him to do his work with little loss of blood, leaving little or no denuded surface after his operation for subsequent adhesions; and with as slight a disturbance of surrounding viscera as possible to restore the uterus as nearly as may be to its

original normal condition, as to size, position, and uniformity of
shape.

In considering the advantages of the vaginal or abdominal route
for this work I lay no stress on the provision of subsequent drain-
age, as in case of myomas pure and simple, there should be no
necessity for drainage, provided always that the surgeon takes
proper precautions for good aseptic work and possesses the
requisite skill. I do not hesitate to say unqualifiedly that the
abdominal route possesses in a superior degree all the above
requisites, and that the skill of the operator will be exerted to a
much greater degree, in fulfilling all the requirements by the
adoption of that route.

I wish to cite two illustrative cases, as showing the ease and
thoroughness with which myomectomies may be done through the
abdominal incision.

CASE I.—Interstitial myoma two-thirds the size of the fist, de-
veloped in the anterior uterine wall. Time of operation, from the
beginning of the incision to the application of dressings at the
completion of the same, thirty-five minutes. Pregnancy, and de-
livery of healthy child eighteen months afterwards.

Mrs. L. W. entered the Free Hospital for Women, October 16,
1900, complaining of severe uterine hemorrhages, to control which
repeated vaginal packing in the Out Door Department became
necessary. She was 37 years of age. Had been married eight
years; had given birth to two children, the youngest born five
years previous to admission. She had not complained of much
pain, except of a cramp-like character at the menstrual periods.

Physical examination revealed a uterine mass the size of a
grape-fruit, above the pubes and crowded well against the anterior
abdominal wall.

November 8th, 1900. Celiotomy was performed through a
median incision four inches in length, and the myoma removed
through an incision in the anterior uterine wall two and a half
inches long. The inner portion of the uterine wall had become
effaced over the surface of the myoma, consequently the uterine
cavity was freely opened in the process of enucleation. A strip of
iodoform gauze was carried through the incised uterine wall and
cavity of the uterus, and cervical canal, into the upper vagina, and
the free end left in the cavity of the uterus, the incision being
closed by two layers of continuous catgut sutures, and the abdom-
inal incision by four layers of continuous sutures of the same
material. Ergot was administered freely for three days and some-

what for a week. The gauze was removed by the vagina within forty-eight hours. She made a good recovery and was discharged on the twentieth day after the operation, the uterus having quite recovered its normal size. In a little less than a year from the date of this operation she was examined at the Hospital and found to be two months pregnant. She was cared for by her physician, Dr. G. F. McIntyre, who delivered her, May 6th, 1902, of a healthy child, and who reported the labor to have been normal in every way.

CASE II.—Sub-serous, interstitial and sub-mucous myomas, ten in all, removed through abdominal incision, uterus and adnexa saved. Specimens presented.

Mrs. I. D. S. was admitted to the Free Hospital for Women, March 5th, 1901. For five years previously she had had excessive flowing at menstrual periods steadily increasing in amount and frequency, and for one year previously occurring each two weeks Her whole appearance showed the great drain that this loss of blood occasioned. Headaches and general depression were a source of complaint, undoubtedly occasioned by the anemia necessarily present. She was thirty-five years of age. She had been twice married, the first time sixteen years before, and the second time five years before entrance to the Hospital. There had been no children, but one abortion one year after her first marriage.

Physical examination revealed multiple myomas of the uterus. Probe passed forward into uterine cavity three and a half inches; the uterus exclusive of the largest sub-serous myoma being equal in size to the gravid uterus at the third month.

March 12th, 1901. Under ether, after dilating and curetting, celiotomy was performed. The largest myoma was sub-serous, growing from the fundus of the uterus, equal in size to a Florida orange. The next equal to a lemon of medium size, was of the sub-mucous variety. It was removed through an incision in the anterior surface of the uterus, and a strip of iodoform gauze passed through the uterine cavity into the vagina, and left as in Case I.

Seven interstitial myomas which were easily felt by pressing the body of the uterus between the thumb and fore-finger of the examining hand, were then cut down upon and enucleated. These varied in size from that of a marble to that of a small green pea. One more of the size of a large marble, had migrated from the uterine surface into the broad ligament, being about a half inch from the uterus; this was also removed, making ten in all.

The remaining steps of the operation did not differ from Case I. The patient made a good recovery, and at the time of her discharge, two and a half weeks from the date of operation, the entire cavity measured two and three-quarters inches, and appeared of normal contour.

The patient reported April 24th, 1903, that she had been perfectly well since leaving the Hospital and her menstrual periods had been regular and normal.

I must apologize for the introduction of the third case, as it is not strictly relevant to the subject of the paper, yet it is so closely allied to it and might be so easily mistaken for the class under discussion that I thought it would be of interest in this connection.

CASE III.—Post-rectal fibroma, size of a large cocoanut with its husk, eight by seven inches. Hysterectomy, followed immediately by enucleation of the fibroma, through abdominal incision. Recovery.

Mrs. E. R. entered the Free Hospital for Women, October 23rd, 1902, having been referred from the Out Door Department by Dr. C. B. Darling. She was fifty years of age; had been married twenty-eight years, one child one year after marriage, one abortion at third month, twenty-four years before admission. Her menstruation was regular, but slight in amount and lasting but two days. Her chief complaint was pain and swelling of the legs, especially the left, which had troubled her for fourteen months. So severe was this when on her feet that she was practically incapacitated from attending to her duties about the house. Added to this pain was the usual suffering coincident with an attack of cystitis. She had accidentally discovered a tumor in the lower abdomen.

On attempting to make a bi-manual examination, the examining finger could not be introduced through the introitus on account of two tumors, one anterior to the vagina and rising nearly to the umbilicus, the other posterior to the same, and which on examining by rectum was found to be posterior to that canal. On passing the catheter into the bladder, the urethra was found to be drawn out to nearly twice its usual length, the vesical neck being drawn quite above the pubes. Sixty-seven ounces of urine was withdrawn, the last pint being very turbid. A bimanual examination made after the relief of the distention of the bladder, revealed a firm mass the size of a cocoanut, posterior to the rectum, its lower edge extending to within an inch and a half of the inner portion of the sphincter and muscle, crowding all the pelvic viscera out of

the pelvis, except the lower end of the rectum and vagina. It was quite impossible to pass the examining finger between the anterior portion of the mass and the pubes, so completely did the mass fill the pelvis. The edema of the legs seemed due to the pressure of the mass in the pelvis, as there was no evidence of edema in other parts of the body, and there were no cardiac or renal complications.

November 4th, celiotomy was done, through a median incision extending from one inch above the pubes to the umbilicus. Bladder was found high above the pelvis, its walls thickened and vascular, and great care was necessary in making the abdominal incision not to wound its walls. The next step in the operation was to perform a complete oophoro-hysterectomy in order to obtain all the room possible to expose the fibroma; this accomplished we had to deal with a firm, smooth, spherical fibroma, filling the pelvis, the rectum plainly in view in front of said mass a little to the left of the median line. A longitudinal incision was then made through the peritoneum and capsule of the tumor exposing the white fibers so characteristic of these growths. It was necessary to remove nearly one-half of the tumor by morcellation, before sufficient room could be obtained to extract the remainder by enucleation. No attempt was made to cut away any portions of the capsule, as the oozing from all parts of its surfaces was so great, that any attempt to do more than check the bleeding and complete the operation was considered inadvisable. Very hot gauze sponges packed into the cavity temporarily stayed the bleeding and enabled me to place a gauze handkerchief in the cavity, pressed tightly against the inner surface by long gauze strips placed firmly inside, the outer edge of both left in the lower portion of the abdominal incision, and the walls of the adbomen were then brought together by through and through interrupted silk worm gut sutures. The iliac vessels on the right side of pelvis were plainly discernible after the removal of the fibroma. The ureters were not seen.

The operation was necessarily long and tedious, more than two hours being required, and the loss of blood was great. One quart of salt solution was left in the abdominal cavity, and during and in the next few hours immediately following the operation eight quarts more were injected under the breasts. In forty-eight hours began removing the gauze strips from the pelvis, and each day subsequently a portion of the same was taken out until the gauze handkerchief was removed on the fifth day, and a small gauze

wick substituted, placed just through the abdominal incision. The silk worm gut sutures were removed on the tenth day, and the wound seemed well united, except the sinus at lower angle where gauze wick still remained.

December 23rd, 1902, examination showed abdominal incision well healed, except small sinus one inch deep at lower angle of incision, vaginal wound entirely healed, and everything about vagina felt soft and satisfactory.

December 24th, 1902. She was discharged to be cared for in the Out Door Department until the sinus was healed.

The edema of legs and pain disappeared after the operation, and the cystitis yielded to bladder douches, so that the condition of the patient was entirely satisfactory when she left the Hospital, with the exception of the small sinus already mentioned.

January 14th, 1903. Report from the Out Door Department. Stated that this sinus was healed and the patient's condition was excellent.

I was not a little surprised in reviewing this case that the fibroid should have caused retention of urine, as in my experience they are of such slow growth that the bladder becomes accustomed to the increasing size, unless from sudden violence or under the influence of pregnancy complicating their existence, the more rapid growth may occasion such pressure on the vesical neck but the investigation of Dr. Graves of the pathology of this tumor, gives a reasonable explanation of this feature of the case. The report of Dr. Graves of Boston, Mass., follows :

SARCOMATOUS DEGENERATION OF UTERINE MYOMA.

The tumor reported by Dr. Baker in Case III. is very interesting, not only on account of the successful issue of an extremely difficult operation but also on account of its pathological findings and its almost unique location. I have attempted in this drawing to represent semi-diagrammatically the position of the tumor. It lay deep in the sacral fossa behind the rectum occupying the entire pelvis, both transversely and antero-posteriorly, and practically impinging on the pubic bone. So firmly did it press on the pubic bone that both the rectum and urethra were occluded.

The pathological findings in this tumor were as follows : There was a well marked capsule, beneath which was a cortex of pure fibromatous tissue extending to a depth of about three-quarters of an inch. In the centre was an irregular cyst about an inch and a half in diameter filled with clear serous fluid. The area between the cyst and the fibromatous cortex consisted of sarcomatous

tissue, which, profusely cellular near the center, became less so peripherally, gradually merging into the fibrous tissue of the cortex. The sarcoma was of the mixed variety, giant cells being conspicuous.

It seems to me that an important relationship exists between the pathological condition and the clinical history of this case. For fourteen months previous to the operation the patient had had sciatic pain and edema of the legs, but otherwise had been perfectly well. During that time I imagine the tumor to have been perfectly benign, being a fibroma which had grown large enough to exert pressure on the sciatic nerve and iliac vessels. Three weeks before operation the patient first discovered that she had a tumor. During those three weeks it had grown enormously. It seems to me that during this time the malignant process was going on rapidly while the tumor was also becoming cystic and edematous within, so that the sudden enlargement was caused by outward pressure from the centre. This I take to be a case of sarcomatous degeneration of a fibroma analogous in every way to the malignant degenerations which take place in uterine myomata.

Fibrosarcomata arising from the connective tissue of the pelvis are of somewhat rare occurrence. They usually originate in the broad ligaments as is shown in the series of cases reported in Veit's Handbuch. I have been unable to find record of a single case where the tumor was situated like this one behind the rectum.

The pathological and clinical similarity in this case to the malignant degenerations of uterine myomata suggests a brief consideration of these tumors. The subject has evidently been insufficiently worked up, for the literature is very meagre, and there exists great diversity of opinion in regard to the histology, etiology and prognosis of these degenerated myomata. Of the few statistics reported those of Martin, Noble, Menge, are perhaps the most valuable. Martin found in 205 cases of myoma between two and three per cent of sarcomatous degeneration; Noble found less than one per cent. in 218 cases, while Menge reported two in 63 cases. Both of these last cases besides being sarcomatous were also cystic, and were the only cystic tumors in the series. This is a significant fact for there exists an undoubted relationship between the various forms of degeneration in myomata, that between cystic edematous tumors and sarcoma being especially important.

During the last nine months I have made careful examinations of thirty-three cases of uterine myomata, three of which showed sarcomatous degeneration. It would be absurd for me to infer from this that nine or ten per cent. of all myomata become malignant because the figures are too small. They are, however, important in one respect: of the four cystic or edematous myomata three were also sarcomatous, thus confirming the intimate relationship between the two forms of degeneration.

The first case that came under my observation was that of a

very large rapidly growing myoma, extremely adherent and diffi-
cult to remove.   Macroscopically the tumor showed a myomatous
cortex with a soft edematous necrotic core, which suggested at
once a malignant change.   Microscopically the peripheral portion
was pure myoma which merged gradually into typical sarcoma
toward the centre.   The change was very interesting, reproducing
closely the description given by Gebhard of these cases.   The
myomatous tissue becomes much more cellular, the individual cells
becoming shorter and thicker (the so-called Sänger's myoclasts)
and the protoplasm broken and ill-defined.   At first these cells
preserve the characteristic conformation of myomatous tissue but
they soon are seen to grow wild, exhibiting the irregularity of
size, mitosis, and giant cell formation of a true sarcoma.

The second case was that of a colored woman thirty-two years
of age who had borne seven children.   For fourteen weeks she
had noticed a movable lump in the pelvis which had grown very
rapidly just before operation.   On gross inspection the tumor was
about the size of a grape-fruit and was not particularly suspicious,
except that it was rather soft, and exhibited two small cysts
in the centre.   The fibrillary structure was also somewhat less
marked toward the center.   My first sections made near the peri-
phery showed pure myoma but in a considerable area surrounding
the cysts the same sarcomatous change appeared which has just
been described.   Some areas in the degenerated portion were also
myxoid, undoubtedly a separation of the individual cells by
edema.

The third case was that of a uterine polyp which filled a large
part of the vaginal cavity.   It was quite soft and with a necrotic
and sloughing surface.   It was removed by morcellation, and from
the pieces brought to the laboratory I made a seemingly conscien-
tious examination, finding a pure myoma, with numerous dis-
tended lymph spaces conspicuously lined with endothelium.   It was
not until after the patient's discharge that I discovered that some
of the pieces which had not been cut showed less of the fibrillary
structure.   Microscopic examination showed them to be sarcom-
atous.   The lymph spaces were especially interesting in that they
were extremely numerous and dilated and were lined by large
polygonal endothelial cells which showed such a tendency to
proliferate that in places they not only choked the lymph spaces
themselves but could be seen to be growing out between the fibres
of myomatous tissue.   This case illustrates well the close intimacy
between the various forms of degeneration for it was necrotic,
lymphangiectatic, endotheliomatous, edematous, and cystic be-
sides being sarcomatous; all of which forms are tabulated under
separate headings in the statistics of Martin and Noble.   The
ease with which sarcomatous degeneration may be overlooked is
also shown by these cases, and I think that the apparently low per-
centage of malignant degeneration may be due to lack of careful
observation.

From a practical standpoint the prognosis in regard to recur-

rence and metastasis is very important and on this point the authorities vary greatly. I think it the duty of every surgeon who removes a myoma to have a most careful microscopical examination made of it, and in case sarcomatous change be found to follow up and report the eventual course of the case.

POST-OPERATIVE CYSTITIS IN WOMEN.[1]

BY

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UNTIL late years the pathological changes in the bladder mucosa after gynecological operations have not been treated with much attention. Quotations in literature have been very scarce, and all the different processes have been comprised under the general term "cystitis." The increase in operations which necessitate interference with the functions of the bladder in a great many instances furnished a greater number of bladder accidents. This became true especially since the modern prolapsus operation came into vogue, and since following the instigation of Ries, abdominal hysterectomy for uterine cancer is practiced by many operators. The modern technique of examining a bladder and the microscopical examination of the urinary excretions taught us to discern between the different characteristic processes which may occur in the bladder mucosa after the above-mentioned operations.

There is to be distinguished simple desquamative catarrh, which does not show any signs of inflammation (cystitis) in the cystoscopic view, or pus cells or pyogenic micro-organisms in the sediment of the urine; this condition, however, is apt to prepare the soil for the immigration of pathogenic microbes, thus leading to cystitis. Inflammation of different degrees of the bladder mucosa may occur after gynecological operations, even if no previous traumatic desquamative catarrh was present. Inflammation of the bladder (cystitis) shows in the cystoscopic view swelling of the mucosa, submucous hemorrhages and attached flakes of pus, and in the sediment pus cells and pyogenic micro-organisms. Desquamative catarrh may follow any operation which necessitates separation of the bladder from its junction to the cervix. It will

do so more frequently if the connection between the cervix and bladder is very firm on account of previous inflammations, so that stripping off the bladder is very difficult and necessarily causes severe traumatism to the bladder wall, especially if the layer of connective tissue separating both organs has been obliterated by inflammatory processes or has been substituted by cicatricial tissue. To this must be added that the circulation in the bladder wall is considerably interfered with in more extensive operations on account of the severing of so great a number of large blood vessels. The traumatic catarrh, therefore, will not heal until sufficient circulation is restored by the establishment of a collateral blood supply. All these catarrhs do not amount to much if the patient is properly cared for, that is, if the bladder is regularly emptied, if catheterization does not cause infection, and if no accumulation of feces in the bowels is permitted to occur so as to prevent the immigration of colon bacilli into the bladder. A more serious aspect is offered by the appearance of a true cystitis. It inconveniences the patient a great deal; it blurs the whole clinical aspect of the post-operative period, and a purulent cystitis is always a constant menace to the kidneys, already taxed by the anesthetic and operative shock.

In searching for the causes of post-operative cystitis, we first have to consider the conditions which under other circumstances lead to the development of cystitis; secondly, we have to determine after what kind of operations cytitis will appear and what operations will lead in the majority of cases to this complication. It is rather hard to furnish exact statistics, because most of the authors did not pay sufficient attention to the subject, so this occurrence is not mentioned at all or only occasionally, so that what I have to say is mostly based upon private information and on the statistics of Wertheim, Taussig and Stoeckel and upon my own experience.

We know that the mere presence in the bladder of pyogenic microbes, excluding gonoccocus and Koch's bacillus, is not sufficient to produce cystitis, but that some conditions must have been previously existent, or must be co-existing in order to lead to inflammation of the bladder. Such conditions are: Interference with the vitality of the mucosa by trophoneurotic influences, mechanical injuries to the bladder wall, distention of the bladder and retention of the urine.

The first thing which must be discussed is the so-called "catheter-cystitis." So far as my experience goes, the direct infection

of a bladder through catheterization is nowadays a very rare occurrence. It can hardly be understood how in a modern hospital, where the most extensive precautions as to asepsis are taken, even repeated catheterization may infect the bladder. Even the flora of the urethra cannot be held responsible, because the researches of recent years have proven that pathogenic germs as a rule are not present in the female urethra, and that if present they are not in a virulent state. Clinical observation teaches, furthermore, that post-operative cystitis may occur in a case whose bladder and urethra has never been touched by an instrument.

Some authors, among them Taussig, consider the post-operative retention of urine a great factor in producing cystitis. I think that is an absolutely false conclusion. In the first place, no one will allow a patient to go without catherization after an operation until retention of urine and distention of the bladder occur, in case the patient is unable to urinate naturally. It has, furthermore, to be considered that post-operative cystitis as a rule does not appear before the seventh day after the operation, a time which certainly does not speak for a cystitis due to retention.

As sources for the importation of pathogenic micro-organisms, there remain to be mentioned the general circulation, elimination through the kidneys, immigration from the intestines and from the dead spaces left in the lower pelvis after hysterectomies. Preparatory, or additional causes, are direct traumatic injury to the bladder wall, trophoneurotic influences and desquamation of the bladder epithelium.

As to the quality of operations which are followed by cystitis, this much may be said. While it is true that after each operation which necessitates a stripping off of the bladder from the cervix, cystitis may occasionally set in, there is a decided predilection for a certain class of panhysterectomies. Under normal circumstances, and if no accident mars the smooth course of the operation, vagino-fixation, Schauta's, Wertheim prolapse-operation, vaginal hysterectomy and abdominal hysterectomy, not executed after the type laid down by Ries, will not be followed by true cystitis. Only occasionally, if the pathological condition leads to interference with the anatomical integrity of the bladder wall, so that the field becomes prepared for the immigration, proliferation and virulent action of pathogenic microbes, cystitis may be observed. It has, however, to be kept in mind that quite often a case is taken for post-operative cystitis, which is nothing else than

the flaring up of a chronic cystitis which has existed for some time previous to the operation.

A cystitis occurring some time after an operation may be taken to be a consequence of it, while in fact it has nothing whatever to do with the operation. I had the opportunity to examine such a case, through the kindness of Dr. Frankenthal. This woman was operated on some eight months ago by Dr. Frankenthal for complete prolapse. Smooth recovery and perfect condition followed the operation, until six months afterward a severe intestinal catarrh seized the patient. Shortly after that the typical symptoms of cystitis set in, which cystitis proved to be of a rather stubborn character.

Cystoscopic examination revealed the picture of a general cystitis, and the bacteriological examination reported the presence of numerous colon bacilli. The patient recovered quickly under the treatment upon which Dr. Frankenthal and I agreed.

It goes without saying that the patients and their relatives will always feel inclined in such a case to accuse the operation of being the direct cause of the cystitis. Although the cystoscopic view of this case showed that the bladder on the left side was drawn out into a funnel-shaped lappet, no inflammation or other bladder symptoms appeared for fully six months after the operation.

It is a most remarkable fact that in a great majority of operations which necessitate the denuding of the lower part of the ureters to some extent, post-operative cystitis will set in shortly afterwards. Wertheim, for instance, reports this phenomenon in more than 60 per cent. of his panhysterectomies for uterine cancer. That we find more cases of post-operative cystitis quoted in the German literature may be possibly due to the fact that the preparation before and the care taken of the patients after operations is more careful and thorough in American hospitals. The bacteriological reports show that in most cases only one kind of microbe is to be found. Among those, the colon species play a prominent rôle. Mixed infections are rather rare. What can be the reason for the frequency of post-operative cystitis after the last-mentioned operations? Stripping off the bladder must be done in a great many operations which were mentioned above and no cystitis follows. The blood supply and the sympathetic nerves are also interfered with by the simple ligation of the ligaments and the parametrium in simple hysterectomy. It seems that this particular treatment of the ureters in certain

operations has something to do with the production of post-operative cystitis. This supposition is supported by an observation which can be made regularly in intra-abdominal implantation of the ureter into the bladder, which operation naturally necessitates the dissection of the lower end of the ureter to some extent. If we cystoscope such an artificial ureteral opening we always find sometime up to several months after the operation, decided edematous swelling of the end of the ureter protruding into the bladder, and an area of apparent inflammation in the surrounding bladder mucosa. It is very likely that some trophoneurotic influence is brought into play by this dissecting of the ureter. The following reasons seem to make this probable. A direct infection from the intestines is improbable because ureters and bladder are again covered up after the operation is completed, and these authors who complain most about post-operative cystitis always insert a vaginal gauze drain between bladder and rectum, and because the post-operative cystitis does not set in before the seventh day after the operation.

The conclusion does not seem to be too far-fetched that a certain length of time sufficient for the development of nutritive changes has to elapse before the ureter and its surroundings establish a punctum minoris resistentiæ for the immigration of micro-organisms which preferably come from the intestines. That trophoneurotic changes appear at the end of a denuded ureter is probable from another observation. As long as the swollen condition of the end of a ureter implanted into the bladder persists, the typical contractions of the ureteral end and the rhythmical ejaculation of the urine does not take place. After normal conditions at the site of the implantation have been re-established the normal function of the ureteral end is taken up again. The anatomical fact that two large ganglia are located close to the vesical end of the ureter tends, furthermore, to support the above-mentioned hypothesis.

I had the opportunity to observe directly the beginning and further development of post-operative cystitis. In three cases where in performing laparatomy it became necessary to split open the parametrium and to dissect the ureters for some distance out of the tissue surrounding them, cystoscopy performed in the first part of the second week after the operation revealed the fact that a region of cystitis was to be observed around each ureteral opening. No specific treatment was brought into use and at the beginning of the third week the inflammation had extended all over the

interior surface of the bladder. As to the treatment, it may be divided into preventive measures and specific treatment of the already developed cystitis. Even if the theory that the development of cystitis is enhanced by the dissection of the ureters should prove to be true, we could never dispense with this important step in many valuable operations. In some cases, Wertheim tried to flush out the bladder regularly after the operation with protargol solutions, but without visible effect. Because of the merely temporary antiseptic influence this would probably not be sufficient. We always have to leave in the bladder a certain amount of the antiseptic fluid. In order not to irritate the bladder, weak solutions of any non-irritating silver salts could be used. This is a measure which, for instance, proves to be very valuable against morbid reaction in the kidneys when treating certain bladder troubles in the male.

It is, furthermore, very important to make sure always of the condition of the bladder before operating and to cure any existing cystitis before celiotomy is performed. I should like to call attention to the fact that solutions of boric acid and silver nitrate generally used for bladder flushing fail to relieve this condition and those of silver nitrate may even prove obnoxious on account of the strong irritation following their use. Urotropin does not seem to have any influence upon this kind of cystitis. I wish to recommend the use of weak bichloride solutions which seems to have a rather specific influence upon this type of cystitis, and to clear up the mucosa in a surprisingly short time. Flushing out the bladder with a bichloride solution from 1-10000 to 1-5000, is followed by instillations of iodoform oil emulsion which have an anodyne effect. Bichloride washing is used every other day, carefully avoiding distending the inflamed viscus. In scarcely any case must more than three or four of these applications be employed.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, May 26, 1903.

The President, EGBERT H. GRANDIN, *in the Chair.*

A NEW ABDOMINAL RETRACTOR.

DR. W. TRAVIS GIBB.—Having long felt the need of a thoroughly practical self-sustaining retractor for small and median sized abdominal wounds, one which after adjustment would not require the aid of one or two assistants to hold in position, and which would give the largest opening for the smallest incision, I have recently had made a three bladed retractor which, in my hands, has filled these requirements perfectly.

The instrument consists of three blades, each one and three-quarter inches long by five-eighths of an inch wide, set almost at right angles to the shafts. It may be made with longer or shorter blades as occasion requires for stout or thin subjects, but for the average case these measurements are practical. The shafts of the two outer blades are curved steel springs separating the blades about three and a half inches and requiring a force of ten pounds to bring the blades together. The shaft of the middle blade is straight and moves through a slot in the handle. On this shaft are teeth three-sixteenths of an inch apart, and on the handle is a spring pin engaging the teeth on the shaft and allowing this blade to be pushed outward to enlarge the wound but preventing its return unless the spring pin is lifted or pushed aside to release the teeth. The retractor blades are shaped and so arranged on their shafts as to make little unequal or uneven pressure, and to present little metallic obstruction to the operator's hand.

When the retractor is to be used, all three blades are brought together by drawing out the centre blade as far as the last tooth on its shaft and compressing the outer blades. All the blades are then together and may be introduced into an opening about one inch in length. On releasing the instrument the outer blades spring into position and exert a lateral retracting force of about ten pounds. To stretch the wound to the fullest extent the middle blade is pushed outward by the operator's finger or thumb, putting the tissues on the stretch, the toothed shaft moving easily through the handle and being held by the spring pin at any point desired. The instrument can be adjusted very quickly and when in position the handles of the retractor lie flat along the abdominal wall out of the way and may be covered with a sterile towel, when nothing can be seen of the instrument but the three retracting blades. The blades flare outward slightly at the bottom of the wound preventing the retractor from being forced out by contraction of the

patient's muscles or by any ordinary traction made by the operator in his manipulations. As the instrument is practically fixed after adjustment in the wound the size of the wound will not be affected by contraction of the abdominal muscles. The opening obtained by the retractor is triangular and presents the largest possible area for a given incision. The pressure exerted by the blades upon the incision will stop all capillary hemorrhage from the edges of the wound. To remove the retractor it is only necessary to squeeze the outer blades together, or to release the middle blade by raising the spring pin which holds it in position. The instrument is made entirely of metal and can be taken apart and sterilized in the ordinary way. It consists of three pieces: The outer blades and handle in one piece, the middle blade, and the spring pin which is attached to the handle by an ordinary lock which allows its removal when the instrument is cleaned. The retractor was devised particularly to facilitate appendectomy through a small split flap incision, but I have used it in ordinary celiotomies for the removal of the appendages and in a gastro-enterostomy, and found the operation field perfectly exposed. It may be used when the incisions are from one and a quarter to six and a half inches in length.

TUBERCULOSIS OF BOTH TUBES.

Dr. W. E. Studdiford.—The patient from whom this specimen was removed was a woman, 36 years old, who was admitted to Dr. Coe's service at Bellevue Hospital on May 4th, 1903. Her temperature was 100, pulse, 80. She had been twice married. Her menstrual history was normal up to January, 1903. She has had three miscarriages, one at seven months a number of years ago. Her last miscarriage occurred in January, 1903. Since then her periods have been prolonged, lasting from ten days to two weeks and have been accompanied by severe pain. Examination on admission revealed a slight bloody discharge. The uterus was enlarged and set deeply in the pelvis. Small fibroid nodules were found in the anterior wall of the uterus and at the fundus. The right ovary was prolapsed and adherent. The left ovary was cystic and the size of a hen's egg. Operation was performed on May 4th. The peritoneum was found to be covered with miliary tubercles. A small amount of fluid was contained within the abdominal cavity.

A CASE OF VOLVULUS OF THE LARGE INTESTINE COMPLICATING PREGNANCY; RECOVERY.

Dr. Joseph Brettauer.—This patient, 37 years old, was admitted to the hospital February 13. Her family history is negative. She had typhoid fever during childhood. She has had seven children. At the time of her admission to the hospital she was seven months pregnant. She had always been more or less constipated. During the last two weeks before admission she had had great difficulty in moving the bowels and for two days prior to admission no gas had passed. The abdomen began to distend and

she had quite intense colicky adbominal pains. She was admitted at 8 p. m., six hours after she had a severe collapse, which necessitated the free use of stimulants. On admission she had a normal temperature, and the pulse was 110 to 120; she had an anxious expression, cyanosis, rapid and short respirations, abdomen distended but not tender and with slight rigidity. There was a tympanitic sound over the entire abdomen even over the pregnant uterus which could barely be made out by palpation. Bimanual examination showed the uterus crowded down in the pelvis, and cervix patent for about two fingers. A high enema in the knee-chest position gave no results. At 10 p. m. I decided to first deliver the patient, hoping this might possibly relieve the obstruction. Though there were no uterine contractions I found to my astonishment the membranes protruding through the vulva. I burst them and easily delivered a child which lived a few hours only. With the hand in the rectum as far up as the sigmoid I could distinctly feel the obstruction about 14 inches above the anus. On opening the abdomen in the median line I found the sigmoid flexure and the descending colon with its mesocolon twisted 360 degrees; it was black for from 26 to 28 inches. There was some fluid in the peritoneal cavity. The patient's condition not being favorable I immediately untwisted the gut and laid it upon the abdominal wall and covered it with gauze, sewed the upper part of the wound and united the gut at the nearest normal looking surface with the parietal peritoneum in the lower angle of the wound and packed the rest with gauze. When the distended gut was being untwisted an assistant introduced a rectal tube through which gas and bloody fluid escaped. As soon as I had walled off the lower angle of the wound and covered the upper, I made a small opening in the gangrenous gut and by a purse-string suture fastened a tube into the transverse colon. After forty-eight stormy hours the patient began to revive. Day by day I cut off pieces of the sloughing transverse colon and after the 10th day the central slough came off entirely. Strange as it may seem the upper part of the incision healed by primary union, though it had simply been impossible to prevent the fecal contents from coming into contact with the part. After a few weeks the patient, with the exception of her artificial anus in the median line, was in good condition. The finger could easily be introduced into the colon, but the rectal opening had contracted so as to allow only a small probe to enter. My intention was to open the abdomen again, and, if the conditions found were favorable, to unite both intestinal ends by suture. To be able to work clean and so insure a more satisfactory result I made a colostomy in the region of the cecum, fastening the cecum to the parietal peritoneum on April 8th and opening it by cautery on April 9th. As soon as the intestinal functions were fully established and free defecation had taken place through the new anus, I began to prepare the patient for the final operation, by daily washing out the ascending and transverse colon as well as the rectum. On April 29th I incised the scars in the median line, carefully dis-

sected several adherent coils of small intestines and removed a piece of about one inch in length from the colon and about one-quarter of an inch from the rectum, and united the freshened edges by suture with heavy silk according to Cornell's method, enforcing the line by two rows of Lembert's sutures. For protection against a possible leakage a small Morris drain was put in the lower angle of the wound which was then closed in layer suture. No untoward symptoms followed this rather serious interference which had lasted two hours. After the patient had passed flatus by rectum several days she had a copious formed movement per vias naturales on May 19th and daily after that. The temporary anus in the region of the appendix was allowed to close and will require very little if any attention in the future.

SPECIMEN OF INTRAMURAL NECROTIC FIBROID.

DR. JOSEPH BRETTAUER.—The patient from whom this specimen was removed was a woman, 43 years old, who had suffered from menorrhagia and intense pain during menstruation for a long time, the pain increasing in severity especially during the last few months. I bring the specimen simply to show that we cannot always diagnose the conditions. Here is an absolutely necrotic intramural fibroid, black in color, friable and necrotic, which never caused any general discomfort nor fever. The diagnosis was made of mucous fibroid which, at a previous curetting, had been felt by palpation. As the curetting brought no relief hysterectomy was decided upon. It was done by morcellement per vaginam. This necrotic fibroid was in the posterior wall of the fundus which was the final piece removed.

DR. H. N. VINEBERG.—I am reminded of a woman whom I curetted for uterine hemorrhage due to fibroid last year. I knew she had fibroids and that they were of the interstitial variety. She made a poor recovery. She developed some temperature and I decided to remove the uterus which I did per vaginam and I then found a sloughing fibroid which was both interstitial and sub-mucous. The fibroid was in the walls of the uterus and projected into the uterine cavity. I consider it rather unsafe to curette when there are present either submucous or interstitial fibroids. An other experience that I have had within a year has made me rather chary of performing a curettage when fibroids are present.

DR. JOSEPH BRETTAUER.—I wish it to be understood that I do not consider this a submucous fibroid; it is distinctly intramural. The curettage was done simply to palpate the endometrium and on this occasion I found a protruding submucous fibroid. I did not consider an infectious cause of the necrosis; I think the necrosis was due to the fact of its rapid growth and its being surrounded by a thick sclerotic capsule which did not allow it to become submucous.

CHONDRODYSTROPHIA FETALIS.

DR. JOSEPH COOKE.—Chondrodystrophia fetalis, or achondroplasia as it is also designated, is, in this country at least, one of the

rarest diseases that can affect the fetus in utero. In Europe the disease may be more common, especially in its milder degrees, but as it has been confused with rickets and, less frequently, with sporadic cretinism, its literature is extremely meagre.

In the light of the recent investigations of Borak and Kaufmann it may be said that the disease differs radically from rickets, and the observations of Symington and A. Thompson not only confirm this view but render it probable that the disease is distinct from cretinism as well. Reisman also agrees that the disease has very little in common with either rickets or cretinism and that it differs from both in many essential points, but he admits that, like cretinism, it may be due to hypothyroidism.

The case I have to report to the society is presented, not only because of its rarity but because of the absolutely negative character of its etiology, which is probably the most obscure feature of this obscure condition.

Case.—Male infant, born at 5 A. M. Thursday, May 21st, 1903. The parents have been married two years and this is the first pregnancy although they have taken no precautions against the occurrence of conception beyond refraining from intercourse during the days immediately preceding and following menstruation. They are both natives of this country and both come of old American stock but there is no trace of consanguinity.

The father is 36 years old, in the prime of health, and there is no history of syphilis, tuberculosis, rickets or alcoholism. He is a business man of means and position, and his responsibilities are great, so that his life, is, of necessity, carefully regulated.

The mother is 28 years of age and her personal history is likewise perfectly negative, with the exception of measles and whooping cough in childhood. She began to menstruate at fifteen years, the flow being of the 28 day type and lasting from three to five days. The amount of the flow has always been normal and she has never suffered pain or discomfort at her periods.

The family history of both parents is negative as far as it can be traced.

The last menstruation began October 10th, 1902, lasted four days and was of the usual amount: the other symptoms of pregnancy appeared in their proper order and there was nothing at any time to suggest the slightest abnormality. Quickening appeared in the first week in April and this, confirming the calculation based on the menstrual history, would have placed the date of the labor in the latter part of July.

Physical examination on April 20th showed heart, lungs, liver and spleen normal: breasts well developed, secreting colostrum, and with perfectly formed nipples. The abdomen was of the usual size and appearance, the fundus being 18 cm. above the symphysis pubis. The external pelvic measurements were normal, the diameters in centimeters being as follows: Anterior spines, 25; Crests, 28; Trochanters, 32; Right oblique, 22; Left oblique, 22; Ext. conj., 20.5; Posterior spines, 8.5. A diagnosis of normal pelvis

was made from these measurements and as no vaginal examination was made at this time the true conjugate diameter was not estimated. When the labor occurred it was evident that there were no pelvic abnormalities of any sort.

The fetal heart was heard distinctly in the left lower quadrant, the rate being 144. Fetal movements were active. The presentation and position were made out without difficulty through the abdominal walls and the case was clearly "L. O. A." This examination was made solely in the routine management of the case, for the patient's condition was excellent from the first. Her urine was normal throughout, her appetite good and her diet generous and judiciously varied. She slept well, exercised freely in the open air, and was singularly free from the usual disorders of pregnancy. Her home surroundings were of the happiest; she was delighted with the prospect of having a child, and she had no cares or responsibilities of any sort.

On Tuesday morning, May 19th, I was called to the case and the patient told me that on awakening she had found about an ounce of bright red blood in the bed, and that she was still bleeding slightly, although she had had no pain at any time, and was at a loss to account for the hemorrhage.

I made an immediate examination and was relieved to find no evidences of placenta previa. The os was dilated sufficiently to admit one finger, the membranes were unruptured and tense, and there was a hand lying against the left side of the head. The patient remained in bed under small doses of morphine and flowed slightly, but with no pain whatever, until 2 A. M. of Thursday, May 21st, when labor began and she was delivered without assistance in three hours.

There must have been a condition of oligohydramnios for the membranes were present and tense on Tuesday and ruptured and widely dilated on Thursday at my second examination, yet neither the patient or the nurse had any knowledge of an escape of amniotic fluid during this time, nor was there any evidence of it in the bed or on the pads.

The umbilical cord encircled the neck three times, the last loop passing over the left hand of the fetus and binding it loosely down to the head. The coils were not tight, the circulation in the cord was good and it was cut between ligatures. The bones of the extended arm were so soft that it offered no obstruction to delivery and the distended abdomen caused no trouble whatever. The abdominal tumor was thought at the time to be bladder, and this afterwards proved to be the case. No liquor amnii followed the expulsion of the child, and there was very little bleeding. The placenta was delivered spontaneously in twenty minutes and was apparently normal, but I regret to say that it was destroyed by the nurse. The child gasped a few times and made a faint cry; but the ribs, which felt like fibrous cords under the skin were so soft that it could not expand its chest to any appreciable extent. The heart continued to beat for about half an hour.

The general appearance of the child is instructive. The large body, the distended abdomen, the legs curved and symmetrically shortened to only about half their proper length, the joints enlarged and, in the lower limbs partially ankylosed, the oversize of the head with softening of the cranial bones, and the thickening of the entire cutaneous surface so that it lies in folds in many places, are all characteristic of the disease. Macroglossia is usually present to a certain degree, and probably has much to do with the supposed relationship between chondrodystrophia and cretinism, but it was absent in this case.

The pelvis was markedly underdeveloped, the tip of the sacrum and the coccyx being tilted upward and forward and the sides pushed in until the outlet was apparently entirely closed. The penis was small, slightly edematous, and the urethra seemed to be entirely absent or represented only by a fibrous cord. The only evidence of a scrotum was two small folds of integument at the base of the penis. The nates were wholly undeveloped, the surface at the base of the pelvis being perfectly flat and apparently entirely bony with complete obliteration, or else marked distortion and enlargement of the ischia. There was not only no anus, but no rudimentary dimple to mark its site. The legs were symmetrically shortened to about half their length, so that the umbilicus was distinctly below the middle of the body, markedly curved, and the bones were extremely brittle, while the arms were of the usual length and the bones, especially of the hands, as soft as cartilage. The pressure mark made by the umbilical cord as it bound the cartilaginous left hand down to the head is plainly seen.

As this disease is one that begins and completes its evolution in the early months of pregnancy so that, at birth, the lesions are usually cured, it is fair to assume that, in this case at least, the process began in the bones of the pelvis and lower extremities which, after undergoing the preliminary extraordinary softening due to the refusal of the cartilage cells to calcify, and their disintegration and absorption by the osteoclasts, became stunted and distorted and then ossified in their present condition. The process, meanwhile, had extended to the ribs and upper extremities, but had not reached the stage of calcification at the time of birth. Whether or not the infant was at full term is a matter of some doubt. The entire history and the height of the fundus point to a seven months' pregnancy, but the small size of the uterus may have been due to the oligohydramnios. The fetus itself was well covered with lanugo which would indicate prematurity, but in other respects it had all the characteristics of a full-term child.

Inasmuch as the dystrophia always affects the lower limbs more severely and stunts them to a greater degree than the upper, it may reasonably be supposed that this is the usual course of the disease, that is, from the lower to the upper extremities. There was no pseudo-rachitic rosary in this case, because the disease

had not progressed in the ribs to a point where this development would appear, the thickening of the ribs in chondrodystrophia being due to the formation of an osseous ring and not to an overgrowth of cartilage as in rickets. The cranial bones, also, were apparently of normal size and uniformly softened, in distinct contrast to the hypertrophic areas and craniotabes found in rickets, and the enlargement of the head was due to the thickened cutaneous tissue coupled with a considerable degree of edema probably of the nature of caput succedaneum.

A complete autopsy was not allowed, but the abdomen was opened and the following conditions found: There was no fluid in the peritoneal cavity, the distention being due to bladder. There was but one kidney, on the right side, the ureter being long, dilated and tortuous and leading to the left side of the bladder. The ureter from the right side of the bladder was long, greatly dilated from back-pressure and ended in a small cyst about the size of a grape, lying loose in the abdominal cavity. The bladder was sacculated and had apparently been twisted on itself, and there was no evidence of any urethra whatever. The intestine contained no trace of meconium, but was filled with a yellowish-white, flocculent fluid. The rectum was entirely absent, and the colon ended in a blind pouch attached to the bladder.

As permission could not be obtained for the removal of any tissue for microscopical examination nor for the opening of the other cavities of the body, the results of the autopsy cannot be regarded as at all satisfactory.

FIBROID OF THE OVARY.

Dr. Dougal Bissell.—The patient from whom I removed this specimen suffered severely and flowed excessively during her menstruation. The pain on the right side was constant but bearable. The dysmenorrhea was of such a character as to keep her from work several days of each month. These symptoms dated back to her early menstrual history gradually increasing in severity. I opened the abdomen April 24, 1903, and the pelvic conditions found were an acute anteflexion of the uterus, a cyst the size of an egg on the left ovary and a solid tumor of the right ovary which I here present. The tumor was slightly adherent on its posterior border to the sacral region of the pelvis. The cyst of the left ovary was dissected out of its bed, leaving a serviceable ovary on that side. The right ovary and tube were entirely removed. On examination the tumor proved to be a pure fibroma, and it is entirely because of the infrequency of this condition that I present it.

THE CHOICE OF METHODS FOR THE RELIEF OF RETROVERSION AND RETROFLEXION.

Dr. John Van Doren Young read this paper, and made the following deductions:

I.—Retroversion and retroflexion are never simply mal-posi-

tions of the fundus, but complex changes in the relation of the whole uterus to the other structures in the pelvis and to the pelvic wall.

II.—The utero-sacral ligaments are the only suspensory ligaments of the uterus when the patient stands, and are the only ligaments not affected by gestation or parturition.

III.—The utero-sacral ligaments suspend the uterus by their attachment to the lower segment, and act as a swing in supporting the rectum. Factors causing the yielding of these ligaments are: Injuries to pelvic diaphragm; increased intra-abdominal pressure; constipation; straining at stool; injuries to the recto-vaginal septum, causing retraction of anus, with rectocele.

IV.—Any method for the relief of these conditions must consider and relieve all the complicating lesions, not the least of these the pathological condition of the endometrium.

V.—All methods for holding the fundus forward must rely upon the integrity of the utero-sacral ligaments, together with the fibrous connective tissue of the broad ligaments to suspend the uterus.

VI.—Non-operative measures are applicable to acute traumatic and replaceable non-complicated cases and depend upon their value for relief of pelvic engorgement, the restoration of normal circulation and the return of normal elasticity and tone to the ligaments and muscular structures.

VII.—Alexander's operation has a limited field of usefulness, and is of value only where there is retroflexion, with proper relief of other complications. It must never be forgotten that traction on the round ligaments tends to lower the plane of the uterus.

VIII.—Ventral suspension, when performed in combination with other procedures, does relieve the mal-position, and prevents a recurrence of the same. Its dangers, when properly performed, are slight if any in subsequent pregnancies. The advantages of the operation are the ease and rapidity of its performance.

IX.—Ventral fixation is applicable only when the patient has passed the child-bearing period.

X.—The ideal procedure is as follows: Curettage; repair of injuries to the cervix, retro-vaginal septum, and anterior wall of the vagina; laparatomy; sacro-suspension; Bissell operation. The disadvantages are the length of time necessary for the operation and its difficulty of performance in fat subjects.

XI.—In place of the Bissell operation, a ventral suspension may be substituted. This, I believe, is wise where many adhesions have been broken up and the posterior surface of the uterus is denuded of peritoneal covering, or the patient's condition demands haste.

XII.—In nulliparæ a pessary should be worn for six months to prevent traction on the utero-sacral ligaments until they have regained their tone.

The action of the pessary is due to the fact that resting on the superior surface of the symphysis, the lower segment of the

uterus is held upward, and the strain taken off the utero-sacral ligaments. The rectocele, where no lacerations exist, is in this manner lessened.

XIII.—The uterus should be curetted as the first step in any of these operations.

XIV.—The adhesions so frequently found in these cases are of the greatest value to the patient in that they fulfil a munificent purpose of nature in preventing the condition of complete prolapse during the existence of the malformation.

DR. J. RIDDLE GOFFE.—I have been very much interested in the paper of the evening and, in a general way, I must say that I endorse what has been stated regarding the normal supports of the uterus as given to us to-night. The author follows the principles that I have been advocating for the past eight or ten years in my discussions and in my writings upon the subject. It has fallen to my lot within the past few weeks to examine 18 recent graduates for positions on the House Staff of the Polyclinic Hospital. Out of curiosity to know what they had been taught regarding the normal supports of the uterus, I put to each student that question. I found that here in New York, among the three schools, there are three different theories regarding the uterine supports and the students from each school were consistent in their answers, following the instruction given at each school. From one school, the students stated that the normal support to the uterus was given by the ligaments and the perineum. When asked which was the more important they invariably answered, the perineum. Another student, representing another school, made the reply that "the uterus was supported by ligaments, by the perineum and by a certain suction force that was exerted inside of the abdomen that held the uterus up." I asked which he regarded the most important, and he answered "the suctional force in the abdominal cavity." The students, representing the third school, invariably said that the uterus was suspended by ligaments, and that they were the normal supports. To a second question as to which was the more important support, the answer was given, the ligaments.

I am a firm believer in the theory that the uterus is suspended by ligaments and to the same degree that all the organs in the thoracic and abdominal cavities are so suspended. When it comes to the consideration of the perineum or the floor of the pelvis I do not see how anyone can resist the argument that when the perineum has been torn through into the rectum, and all possible support from that source absolutely taken away, the uterus will remain in place. I believe that is the universal experience of most observers of this condition; if the uterus, under such conditions is found not to be in place, it is due to some inflammatory complications which displace it. We must look to the ligaments or else this mysterious retention force within the abdomen, to hold the uterus up. I believe that such force is the ligaments.

When we come to discuss the functions of the different liga-

ments I agree in a general way with the explanation set forth by the reader of the paper. The chief support of the uterus is the sling of tissue which extends from the sacral vertebræ to the cervix plus the utero-vesical ligaments which extend from the anterior face of the cervix to the symphysis. That allows the uterus to swing forward and backward and also allows the fundus to rise and fall as on a pivot, with the filling or emptying of the bladder. The functions of these broad ligaments as supports has been, I believe, exaggerated to-night. My idea is that the broad ligament offers a means of carrying the blood supply to the uterus. We frequently lose sight of the fact that the uterus is not a little body weighing one and a half to two ounces but that, under certain conditions, it may rise to the diaphragm; it means that it must be provided with large blood-vessels in order to get sufficient blood supply, as in gestation. The broad ligaments offer that means. When the uterus is enlarged to full pregnancy, the blood vessels are stretched, their convolutions are straightened out without impinging on their calibre. It seems to me that this protection with blood vessels is their chief and principal function. We must, of course, get a perfect blood supply to the uterus in gestation.

With regard to the round ligaments they are repeatedly relaxed and contracted. They limit the excursions of the fundus. They are distinctly muscular and, when the bladder is filled, the fundus uteri is carried up; when the bladder empties, the round ligaments contract and pull the fundus back in place. So the fundus is kept to the front and, when it rises it carries the intestines with it. During gestation the fundus is pulled by the round ligaments snugly to the front against the interior surface of the abdominal wall, making sure that there are no intestines in front of it, and as it rises in succeeding months it carries the intestines up and back. This, I believe, is the principal function of the round ligaments. In the operation for the relief of retrodisplacements the round ligaments are utilized to hold the fundus to the front until the utero-sacral ligaments can recover their tone and sustaining power.

The ideal operation for the relief of a retro-displaced uterus is one that is based upon the utero-sacral ligaments. If you keep the cervix high up in the hollow of the sacrum the fundus drops to the front by gravity and is carried there by intra-abdominal pressure. I have been shortening the round ligaments for some time, and have been well satisfied with my results. In connection with this I have also shortened the utero-sacrals. Bovée, of Washington, has had a large series of cases in which he operated upon the utero-sacral ligaments, and he reports satisfactory results.

With regard to the utero-sacral ligaments undergoing changes during pregnancy, I believe they do; they become hypertrophied and they involute. In speaking of involution we should emphasize involution of the ligaments as well as of the uterus. It is

because they do not involute that we may get displacements after parturition.

With regard to uterine suspension there was much discussion at the St. Paul meeting of the American Medical Association two years ago. In this operation there are two dangers, (1) interference with gestation by restricting the movement of the fetus, and (2) the probability of relapse after every pregnancy. Two cases were reported by Dr. McLaren, of St. Paul, in which it became necessary to cut away the bands to prevent miscarriage at the fifth month. During the discussion Dr. Howard Kelly admitted that these artificial bands of peritoneal tissue were stretched out during gestation and, having no muscular structure, they could not involute; therefore, every case would probably relapse into retroversion and require another operation. Every case that had a child would require another operation. That, I think, throws this operation out of the field.

Dr. R. B. Talbot.—I used to do Alexander's operation for retroversion and noticed, too, at the time that Dr. Polk did this operation and that many of his patients returned to the Demilt Dispensary where I was working with a retroversion that must have been as bad as when they were first taken charge of, two or three years before. The operation really had no lasting effect and showed that there was little or no improvement whatever. The operation that I do and have been doing for retroversion, where one is required, is the operation of suspension. A pessary is a good thing in its way and helps very many cases. In the ordinary cases where the women are liable to have children I always find benefit by doing a ventral suspension. In those cases that have passed the child-bearing period I do a ventral fixation. The difference between the two is the degree of firmness with which the fundus is sewed to the anterior wall of the abdomen. As Dr. Gibbs has stated, a number of cases have had children after ventral suspension and this operation of ventral suspension is a good one where the patients are through with the child-bearing period. If a fixation has been done, and full termed pregnancy takes place, the tissues are stretched or torn entirely. I have seen two or three cases where the women have become pregnant and the pain was so great that the abdomen had to be opened and the adhesions divided. I remember well one woman on whom I thought I was doing a simple suspension and not a fixation. Two years after she came back to the hospital and she had not had a child nor was she liable to have one. But she had a uterine fibrosis, or enlarged condition of the uterus. The pain was extreme and there was a very large dimple in the abdomen from the tension of the adhesions with chronic pain, and it was finally decided to open the abdomen. It was then found that where we expected to get peritoneal adhesion there was a mass of tissue as large as the handle of a hammer; there was no muscular tissue. This was cut away and the woman was relieved immediately. I believe that, in many cases where the woman cannot wear a

pessary, the only thing that can be done is to do a suspension, and no other operation (with a good lasting result) with comfort to the patient but hysterectomy is left, and we certainly do not want to do that. I saw a case to-day which was operated upon six or eight years ago for retroversion. The uterus was enlarged from congestion and fibrosis at the time. The replacing of that organ and continual holding of it in a normal position by the adhesions or suspension, allowed the normal circulation to become restored, and the size of the organ had become reduced one-third.

Dr. H. N. Vineberg.—It seems to me that there is a great difference of opinion in regard to almost everything in connection with retroversion. In this country it is generally held that retroversion, apart from complications, will give rise to symptoms calling for relief. Now, in Germany and in England a retroversion is looked upon as innocuous and only the complications as calling for attention. So far as my experience goes, I am firmly convinced that marked retroversion with a large uterus will give rise to symptoms, apart from any inflammatory conditions of the adnexa, and if we properly insert a pessary, it will relieve that patient of her symptoms and the relief is not due to suggestive therapy by any means. If you can bring that uterus forward by a pessary and relieve that woman, you certainly can do so by any operation which accomplishes the same thing, if that operation itself will not give rise to undesirable conditions.

The discussion of the supports of the uterus has been very instructive and is interesting from a scientific standpoint, but still I do not believe that when it comes to the question of a surgical cure of a case it carries much weight. You cannot restore conditions that are destroyed by any operation; most of the operations are usually empirical. I do not agree with the reader of the paper that because there are so many operations it argues that they are all unsatisfactory. I should say that, as gynecologists, we should have a variety of operations for the same condition and know what case to select for one and what for another.

The writer of the paper seems to make a distinction between the advantages of the Alexander operation and for holding that it is suitable for retroflexion and not for retroversion. If I understand the condition rightly retroflexion is simply an exaggeration of a chronic retroversion. At first there is a retroversion and after a time pathological changes occur at the internal os and you get a retroflexion; retroflexion does not exist at first. So the Alexander operation, if it be suitable for retroflexion should certainly be suitable for retroversion. Furthermore in many cases it does not matter what operation is done for the relief of the displacement; you cannot always cure the symptoms. The uterus often is in a condition of chronic metritis and no matter in what position you place the uterus the symptoms will persist. We all know how rebellious chronic metritis is even when the uterus has never been displaced. I have never met with the brilliant results, such as reported by Dr. Talbot, where the uterus

is the size of a gravid uterus of five or six weeks, and has so existed for some time. In cases of chronic metritis, if not within three or five or six months after pregnancy, I know of no operation which will bring down the size of that organ. It will usually remain large and give rise to distressing symptoms.

DR. DOUGAL BISSELL.—I take exception to the remarks of Dr. Vineberg. I believe that surgery can often restore an abnormal to a normal condition, and after the operation for shortening the round and broad ligaments the condition is practically normal; six months after the operation it would be impossible to determine whether or no an operation had been done. The utero-sacral ligaments and the broad ligaments are the most important factors in suspending the uterus and keeping it in its position. The round ligaments play an important part. But in resecting the round ligaments and suturing the broad ligament in the opposite direction to which it is cut we shorten all structures on each side of the uterus and place the uterus in an anteverted position. The utero-sacral ligaments which have been overstretched regain their tone and elasticity. I consider it legitimate to experiment and see how much of the ligament or ligaments it is necessary to resect, and I found that these cases were most satisfactory when almost the entire broad ligament and portion of the round ligament were cut away.

Two of the number operated upon up to date have failed. The failures have been due in each case to not shortening the ligaments sufficiently. I now leave only a quarter of an inch of the round ligament on the uterine or proximal side and less than a quarter of an inch on the pelvic or distal side, sewing near what is called the infundibuliform process. I have had two cases of pregnancy follow the operation, and in each case labor was in every way normal, and involution and position of the organ three months after were also normal. I am convinced that the operation of correcting the position of the uterus by this method possesses advantages not offered by any other.

DR. LEROY BROUN.—I differ with the reader of the paper in reference to restricting the operation for shortening the round ligaments to simply retroversion. During the past twelve or fourteen years I have been shortening the round ligaments in cases of movable displacements of the uterus, during which time I have done this operation some 300 times, and it is my experience that it gives relief, anatomically as well as clinically, whether the case be one of retroversion or retroflexion. It makes no difference at all. Of course, when there are adhesions I follow the custom of all operators of doing an abdominal section. I am much pleased with the Bissell operation.

DR. GEORGE TUCKER HARRISON.—While I agree with the reader of the paper in most of his statements I am not prepared to admit that when ventral fixation is indicated we should confine it to women who have passed the child-bearing period. The dangers of pregnancy and child-birth have been exaggerated and

a proper distinction has not been made. If the operation is properly performed there are none of the dangers that have been attributed to it. A great many objections are absolutely theoretical. The opinion of the majority of gynecologists and obstetricians is that the operation does not produce disastrous effects. Regarding the method of operating we do not carry the sutures through the abdominal wall as formerly was done; we suture the fundus to the peritoneum and subperitoneal tissue only.

With regard to the method of operating as performed by Olshausen, to which Dr. Vineberg alluded. Not long ago I read a statement from Fritsch that in one case he had been compelled to perform a laparatomy because, after operating according to the method of Olshausen, they had sutured the broad ligament on each side to the abdominal wall, and a pocket had been left there and the omentum had slipped down into it. This caused excruciating pain. That is the objection to-day. In this operation as now performed you make an accessory ligament. It will be elongated somewhat, but the uterus stays in position. I insist upon it that all those operations do not restore the organ to a normal position. The point made by the reader of the paper is correct. The Alexander operation does hold the uterus down on a lower plane. A great many patients suffer very much on that account; there is really no single operation which will restore the organ to a normal physiological condition.

The operation Dr. Goffe advocates is theoretically all right, shortening the utero-sacral ligaments. The utero-sacral ligaments are essentially most important structures in maintaining the uterus in a normal position. That operation seems to be a promising one in the future. Dr. Bovée reports excellent results.

DR. EGBERT H. GRANDIN.—It is possible that my views on this subject are not new to you. I do not agree with any of you, so to speak. I do not think that the mere version or flexion has anything to do with the symptomatology of uterine displacements, but I do believe it is the sagging of the uterus. Any operation that does not lift the uterus to a higher level will not accomplish the results desired. Shortening the round ligaments will not do it. The ideal operation has not yet been determined unless that of Dr. Bissell's shall succeed. His operation I have never done, although I believe it will lift the uterus to a higher level. Those of you who open the abdomen and look at a retroverted uterus will notice varicosities in the broad ligament, a condition to which Dr. Dudley called attention years ago. Any operation that does not attempt to equalize the uterine circulation by lifting the uterus will not avail. I do not believe that slitting the broad ligament will accomplish the results required. Fixation is a bad operation. The dystocia that may follow suspension is horrible, but I have never seen it occur when the suspension has been done properly; then the anterior wall of the uterus is not only held forward, but it is lifted and maintained in place. I am satisfied that in many of these cases, should pregnancy ensue, the new sus-

pensory ligaments will prove to be of no avail, and the uterus will fall back into the hollow of the sacrum. The operation employed must be one that will lift up the uterus, and this must always be done in order to cure version that is associated with prolapse, the only form of version that will give rise to symptoms. Version not associated with prolapse gives rise to no symptoms. The varicosities in the broad ligament gives rise to back-ache, bearing-down pains, etc. I am making these statements and basing them upon an extensive experience. I have not done many Alexander operations because I always look upon the round ligaments as mere guy-ropes; the attempt might be made to shorten them from above, but certainly not from below. Fixation we certainly will throw aside unless we are dealing with total prolapse. In Dr. Bissell's operation, the resection of the round ligament should be thrown aside, as it is no factor in the technique. Shortening the broad ligament may hold the uterus higher up in the pelvis.

Dr. R. A. Murray.—The statement has been made that after pregnancy occurs the uterus will drop back into the hollow of the sacrum. I think the best way to cure these cases is to allow pregnancy to occur; often this will result in the cure of the retroversion or retroflexion, if the uterus is taken proper care of during the accouchement and puerperal state, particularly if the patient is kept under observation and treatment until the process of involution in the uterus, vagina and ligaments has been accomplished.

Dr. J. V. D. Young.—I have been much interested in the discussion and I have learned very much. There is one point raised by our Chairman, that retroversion or retroflexion must be associated with prolapse to give rise to symptoms. I thought I called attention to this by showing that the distance between second sacral vertebra and the corporo-cervical junction was always increased.

With regard to Dr. Harrison's remarks about fixation and suspension I meant to have said "fixation applied after the childbearing period and suspension during the child-bearing possibilities."

My object in reading the paper was to call attention to the utero-sacral ligaments as factors in supporting the uterus. Also, to show that prolapse of the rectum was a factor in pulling upon the ligaments.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of April 28th, 1903.

The President, BACHE McE. EMMET, M.D., *in the Chair.*

DR. GEORGE H. MALLETT reported a case of

NEPHRECTOMY.

The specimen that I present this evening is a kidney which I removed on April 16th. The patient is a very small and delicate woman, aged 29. I first saw her on February 16th, 1901. At that time she was suffering from acute hydronephrosis caused by twisting of the ureter during the operation of nephropexy, performed on January 10th, of the same year, by a prominent surgeon of this city. I am informed that after the operation the wound healed primarily, but the patient was delirious, and had persistent vomiting for three or four days. Persistent pain was felt in the region of the kidney soon after the operation, and a slight rise in temperature was noticed. This left her for a time. A tumor was discovered under and below the twelfth rib of the right side. This was thought to be a part of an enlarged liver. The patient was allowed to leave bed, and continued about the same for nearly two months. In the absence from the city of the surgeon who performed the operation I was called in. An exceedingly sensitive tumor was felt on the right side of the abdomen. Her temperature was then over 102° and her pulse over 120. Her urine had continued about normal in quantity and quality. A speedy operation was advised and she was removed to my service in the hospital. An incision was made in the line of the cicatrix, and the kidney exposed. The external convex border opposite the hilum presented in the wound. This was incised, liberating about six ounces of foul-smelling urine. The interior of the kidney and its pelvis was explored with the finger, and no stone was found. The patient's condition was so extremely weak that it was deemed advisable to put her to bed with least possible delay. The wound in the kidney was packed with gauze and drainage established. She recovered from the operation, and a renal fistula was maintained by means of rubber tubes. When the drainage was interfered with she always had a dull aching pain and became extremely nervous. The enlarged kidney could then be distinctly felt. When drainage was established the symptoms immediately disappeared.

After the establishment of the renal fistula the patient was able

to go about, but the inconvenience and annoyance attending the fistula became unbearable, and her general health seemed so poor and her vitality so low, that I hesitated about performing nephrectomy, hoping that her strength could be built up. She gained somewhat in strength during the winter, but during the summer lost all that she had gained, so that I deemed it advisable to wait no longer and on April 16th I performed the operation. After the operation she suffered greatly from persistent vomiting. Previous to the operation the left kidney secreted on an average about twenty-three ounces of urine in the twenty-four hours, which was found to be normal by analysis. The day following the operation but twelve ounces were secreted, and on the second day but nine ounces; after that a rapid increase followed, and at present forty ounces of normal urine are secreted daily, and the condition of the patient is all that could be desired. No rise of temperature has been observed, and the pulse has been excellent.

After the establishment of the renal fistula, the patient readily learned to cleanse the wound and inject antiseptics into the tube. In November, 1901, on one occasion the drainage tube was lost, and a careful search of the room failed to discover it. I was sent for and after carefully probing the kidney failed to locate the tube; nor was it found until the removing this kidney on April 16th, when it was found inside of the pelvis of the kidney. The patient informed me that the purulent secretion of the kidney increased markedly after the loss of the drainage tube.

DR. JOSEPH E. JANVRIN.—I operated some three years ago for removal of the right kidney in a young woman whom I had seen on several occasions during two years prior to the operation. I believed that she had a stone in the pelvis of the kidney. I had treated her simply to relieve pain, etc. Finally, at the end of two years I had Dr. Willy Myer see her with me. We examined the interior of the bladder and found only a little puffiness around the orifice of the right ureter. She had pain similar to kidney colic due to presence of a stone. As she had passed more or less uric acid we came to the conclusion that it was a stone in the pelvis of the kidney. I operated and found no stone. We had drawn urine from both kidneys separately, had it examined and every indication had pointed toward an inflammatory condition in the pelvis of the right kidney. The pelvis of the kidney I found apparently normal, perhaps a little more congested than usual. I passed a small catheter down from the pelvis through the ureter, and it was pervious to the bladder. Inasmuch as the trouble had existed so long, and the symptoms all indicated that kidney as the focus of disease, I took it out. The pelvis of the kidney was found to be studded with minute tuberculous degenerations. The patient recovered and since then has been in perfect health. This shows that we can frequently be mistaken in diagnosis. The pain, I suppose, was due to the extremely sensitive condition of the lining of the pelvis of the kidney from this tubercular deposit.

DR. BACHE McE. EMMET.—I wish to ask Dr. Mallett if there

proved to be any evidence by which he could determine whether there had been a twist in that ureter, made by the operation of nephrectomy, which might have been the cause of the ultimate disease?

DR. MALLETT.—There was no way of determining. I tried to catheterize the ureter, but could not.

DR. BAKER, of Boston, read the paper of the evening, on

UTERINE FIBROIDS.[1]

DR. W. P. GRAVES, of Boston, made a report of the results of his study of

SARCOMATOUS DEGENERATION OF UTERINE MYOMAS.[2]

DR. GEORGE T. HARRISON.—If these sarcomatous degenerations are to any extent frequent, Dr. Graves' researches will certainly have a bearing on the indications for treatment. It seems to me from the history of these cases, that when a tumor of this kind has been quiescent for some time, then begins to grow rapidly, operative intervention is indicated at once. It seems in all these cases, that sarcomatous change induces a rapid growth of the tumor.

DR. JAMES N. WEST.—I am interested in Dr. Baker's report of cases of pregnancy, having had somewhat similar results in patients under my care. I removed sixteen myomas in one case and this patient became pregnant in eighteen months. Since then, I removed five, and the woman became pregnant and went to term.

It becomes a serious question to know where myomectomy ceases to be to the patient's best interest and safety, and where hysterectomy should be done. In one case, that of a young married woman, under thirty, no children, I did myomectomy and regretted it very much. It was a case of interstitial myoma, 4x3½. In removing it, it was necessary to open the uterine cavity for some distance. There were a number of other myomas, of the same character but not so large. Two days after the removal of the tumors, the temperature was 105. On the tenth day, pneumonia developed. With these various complications, I thought I should lose the patient, but she finally recovered.

I am interested in Dr. Graves' report of sarcomatous degenerations, and rather surprised to hear of the frequency with which these occur. I have observed a number of cases which have been operated upon, in which malignant disease has developed around the region of the stump, and finally destroyed the life of the patient. Dr. Graves' report throws light upon the cause of this. Several cases have occurred in the Woman's Hospital, supposed to be pure myoma, in which the uterus was taken off supravaginally. One woman, a trained nurse, died from malignant disease.

DR. BISSELL.—The uterus should always be saved if sufficient tissue remains after the removal of the fibroid, to form a function-

[1]See original article, page 339.
[2]See original article, page 346.

ating organ. My custom has been to follow this rule, and I have never regretted it.

Dr. Sumner Shailer.—Is there any relation between the size of the degeneration and the amount of sarcomatous tissue found?

Dr. Graves.—There is enlarged lymph space. I did not find any particular relationship between size and growth of sarcomatous cells.

Dr. L. Grant Baldwin.—These tumors should not be taken out without symptoms that warrant such procedure, but I think as a rule, symptoms do occur. In seeing cases, men should be careful about advising patients not to be operated upon. Sometimes a man of great experience and eminence has said, "Don't be operated on" and when it becomes necessary to have an operation those patients refuse. In the past year, I have seen two women refuse operation, until they were moribund from hemorrhage.

In cases which I have been able to follow, in a majority at least, fibroids become malignant in the sense of causing danger to the patient's life. Only recently I saw a case of fibroid, for many years under the care of a very eminent man who refused to operate. Adeno-carcinoma has now attacked the endometrium. I believe it could have been removed successfully earlier. She now has a bad heart, kidneys and is generally beyond operative measures. I saw another young woman operated upon two years ago, —carcinoma of the endometrium with a fibroid,—who had been advised that if she kept along to the menopause without operation, she would be helped. If this were so, it would be all right, but they do not reach the menopause; in a majority of those cases, it does not occur, and we get not only sarcomatous, but calcareous degeneration, and inflammatory conditions are set up which endanger the life at once.

Dr. J. Riddle Goffe.—I was early impressed, during my service at the Woman's Hospital, with the formidable nature of operations for fibroid tumors.

About the time I joined the American Gynecological Society there were vigorous discussions before that organization as to whether or not every fibroid tumor should be subjected to operation. Operation was frequent, and always implied removal of the uterus. Then I supported the idea that no tumor should be subjected to operation unless it gave very apparent symptoms through degenerative processes—through pressure from its size, or through complications such as salpingitis or oörphoritis. Since the idea of myomectomy has been presented, I have taken a rather radical view of the situation so far as treatment is concerned, following the line of thought suggested by Dr. Baldwin in his remarks to-night. In a great majority of these tumors degenerative processes develop, or they become so complicated as to demand operation, which, at a late day, is frequently fatal. Why wait? Why not take them as soon as they are found? When a fibroid tumor of the uterus comes to my hands, I am ready to advise posi-

tive removal immediately. If the tumor is small the risk of the operation is almost nil for I remove it by the vaginal route. While no larger than a man's fist, a tumor of this kind can be removed, no matter what its location, through the vagina. Mention has been made of removal of multiple tumors by the abdominal incision. I have removed as many as seven fibroid tumors, some of them subperitoneal and some mural, through the vaginal incision. After this operation, patients are on their feet much more quickly than after laparatomy.

We can follow up uterine tumors—splitting the uterus wide open with perfect impunity, enucleate the tumors, sew up the wounds in the uterus and still have an organ susceptible of future pregnancies. I feel that the reports of percentages of degenerative processes in tumors will increase now that our attention has been turned to this kind of investigation. This emphasizes the necessity of removing them early, doing away with them before they have undergone such changes and put the life of the patient in jeopardy.

The old idea of advising young unmarried women having fibroid tumor in the uterus, never to marry because of the tremendous risk they would run in the matter of future parturition, is all wrong. The woman should be advised to submit at once to operation, and not go through life deprived of marital comradeship and the gratification of maternity, should that be her good fortune.

Dr. LeRoy Broun.—What Dr. Graves has brought out has made me more sure than ever of the ground I have always occupied concerning fibroids—that is, that where a tumor is recognized, it should be removed, no matter at what stage. We should regard them as possibly malignant until they are proved otherwise, as we do in the case of ovarian cysts. They can be removed with much greater ease when small than when they have grown larger.

Myomectomy I consider the ideal operation, but I believe the physician should decide in each individual case which operation, myomectomy or hysterectomy, would be for the best interest of the patient.

There is no doubt in my mind that a uterus full of fibroids should be removed; otherwise a macerated uterus, poorly nourished, is left with stitches all through it, sufficient to possibly strangulate parts of it. The danger of leaving such a uterus is infinitely greater to the patient than that of removing it at the internal os, and in such instances I do not think a patient should be subjected to such a risk for the sake of conservatism.

Dr. Janvrin.—The first case in which I ever discovered a fibroid growth where I performed vaginal hysterectomy for carcinoma uteri was some fifteen years ago. I presented the specimen at the meeting of the Obstetrical Society in the City, having removed the uterus a few days previously. In that case the carcinomatous condition involved not only the cervix, but it extended up, involving the endometrium. In the anterior wall, near the fundus, was a pure, simple fibroid growth as large as a pullet's

egg. That, however, was absolutely distinct from that portion of the uterus which was implicated in the carcinomatous condition. I have seen several other cases—perhaps five or six—in which, in conjunction with a true carcinomatous degeneration of the cervix or of the endometrium, or an adenocarcinomatous condition, small fibroids existed in the uterus. In every one of those cases, these growths were absolutely distinct from the carcinomatous degeneration. When examined by the pathologist, they have been pronounced to be absolutely fibroid—no degeneration in the fibroid growths themselves.

I have never seen any case that I am aware of, in which there has been a fibroid growth independent of the carcinomatous degeneration of the cervix or of the endometrium, where this growth was not separated by a certain amount of muscular stroma from the carcinomatous tissue. That is, the two things have been absolutely distinct. I believe, however, as Dr. Graves has proven to us by the cases which he has so thoroughly examined and presented to us to-night, that there are a certain number of cases, rather small, I should say, in which a fibroid condition can degenerate into a sarcomatous condition. We all know that to be the case. I believe those cases are very rare, however, and I have been very much interested in the cases presented to-night. Dr. Graves has not mentioned that any of these cases have taken on a true carcinomatous degeneration—all have taken on typical form of sarcomatous degeneration. That is, I think, a point of very great interest to us.

I was very much interested in Dr. Baker's paper. It suggested to me, not so much the propriety of doing myomectomy in preference to hysterectomy, or vice versa, as the advisability of waiting somewhat, in the cases in which we have small fibromatous growths. I know Dr. Goffe's ideas very thoroughly, but I think a certain number of cases developing in women above forty years of age—small fibromas situated under the peritoneum—in which hemorrhage, if any, is very slight, especially in married women who will not bear any more children, might be let alone for a while to see whether they will get through the menopause all right. In a majority of cases of this character my treatment has been simply palliative, and has been all that was required.

As a rule, in these cases, the menopause has been delayed two or three years—going to fifty-two or fifty-three years; still, in a majority of cases, they get through with it without difficulty. On the other hand, we do have cases in which, after the menopause comes on, the growths increase in size. I believe those cases to be very exceptional. If the growths do increase rapidly, no matter what the age of the patient, and there is profuse hemorrhage and general exhaustion and emaciation with anemia, without doubt myomectomy or hysterectomy should be performed.

My habit is almost invariably to do hysterectomy, for the reason that it is an easier and safer operation than enucleating growths so thoroughly disseminated through the uterine structure;

and at that age the uterus is not of much use to the patient. I do total hysterectomy, or leave the cervix *if it is not involved in the disease.*

DR. EMMET.—I frequently see cases of old tumors in patients whom I have seen pass into the menopause—those dry fibroids as hard as door knobs—and the patients are in good condition. They do not ask for operation, nor do I suggest it. If I see anything growing, or any change in the character of the growth—softening,—I operate. I have handled a number of these cases for years now, and still would hold the view of not urging those women in whom the growths are quiescent to undergo operation.

Progress has been made during the last twenty years with younger women, and the opinion seems to be that we should intervene early in most of those cases. They have their life before them, and they are entitled to our advanced skill; and, also, they should take some risk for a thing of so many possibilities.

DR. JAMES N. WEST.—In a young married woman, where the fibroid growth is situated so that it does not in any way injure her, and has not caused her to have abortions or become sterile, it is possible that the physiological changes incident to pregnancy will cause the tumors to disappear. I have had such cases under observation. Two tumors as large as an English walnut entirely disappeared, and the patient bore a healthy child and is perfectly well. I believe we should keep such cases under observation, and if there are no symptoms, in my opinion it is not wise to do a serious operation until we see what changes may take place after pregnancy.

DR. BISSELL.—Dr. Freeborn, two or three years ago, presented a paper before us on this subject. I believe he then claimed that fibroids do not undergo malignant changes.

DR. GRAVES.—Carcinomatous degeneration of fibroids has been authentically reported, but always in cases of adenomyoma. The adenomatous portion of the myoma probably represents rests of the Wolffian bodies as has been well pointed out by Schickl in a recent number of Virchow's Archiv. The carcinomatous process originates in the epithelial lining of these glands.

DR. BAKER.—I am much gratified that my paper called forth so much of interest in its discussion.

In regard to Dr. Graves' remarks, I think careful pathological work will prove whether or not these tumors should be removed at once. I think the next year or so will show, in the pathological laboratory, after careful, exhaustive study of each and every fibroid removed, what the course of procedure should be.

TRANSACTIONS OF THE
CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of May 15, 1903.

The President, C. S. Bacon, M.D., in the Chair.

Dr. Kolischer presented

FROMMER'S MODIFICATION OF THE BOSSI DILATOR.

Dr. C. S. Bacon.—I would like to make this observation, which applies to this instrument as well as to the Bossi and others: It is not yet clear to me that the increase in the number of branches is a distinct advantage. There are several things in the mechanism of dilatation that are still to be worked out. We have to take into consideration the dilatation of the ring; we have to take into consideration the portion of the ring that is in contact with the branches which does not dilate at all; and we have also to take into consideration that the power applied in the use of any instrument is not half way between the branches but often near the branches.

Dr. C. B. Reed reported a case of

URETERAL IMPLANTATION.

The woman entered Wesley Hospital for pyosalpinx, December 19, 1901. The opening of the abdomen revealed very dense adhesions which bound the tumor to the pelvic floor, to the intestines and to the uterus. In separating these he came across what seemed to be an unusually dense adhesion or band which seemed to pass over the tube and behind it to the pelvic floor. The assistant cut this band, at his request, and immediately revealed the ureter, which was further identified by the intermittent gushes of urine from the upper end. The upper end of the lower section was immediately tied, an incision made in its side, into which the upper end was then drawn and sutured, the so-called Van Hook method of ureteral implantation. The ureter was dropped and the operation on the tube completed. At the end of four weeks he used a Harris instrument and got urine from both sides. At the extirpation of approximately six months he repeated the experiment and again got urine from both sides.

Dr. Kolischer read a paper entitled

POST-OPERATIVE CYSTITIS IN WOMEN.[1]

Dr. L. E. Frankenthal.—After an observation of some thirty or more cases done by the Wertheim method, I feel justified in making the statement that there are practically no urinary symp-

[1] See original article, page 349.

toms following the operation. The only symptoms any of the patients I operated upon complained of were those of incontinence, during the first week or so after the operation, which I believe was due to the stretching of the urethra. After that time it seemed to assume its normal shape. In one or two, may be three instances did this incontinence continue for any length of time and in every instance it was in old women on whom I had operated, on account of their age, without general anesthesia. In these instances I did not open the peritoneum but where it was firmly adherent to the uterus I shelled it up by sacrificing some of the uterine musculature until I could get up to the fundus, then turned the fundus down and sewed it down. I feared by dragging the vesical peritoneum downwards I would have a pouch in the bladder and might have retention of urine, which subsequently decomposing, affects the bladder wall and produces cystitis.

The case Dr. Kolischer referred to was not quite correctly quoted in one particular; she had two operations, one for complete prolapse, and at that time there was an immensely elongated cervix. I reasoned that the replacing of the organ would cause a subinvolution and thought I would not excise the anterior elongated cervical lip. She came back to the hospital six or eight months after the primary operation and I then excised the cervix. That would make 15 or 18 months from the time of the original operation until Dr. Kolischer saw her. After the prolapse operation she stayed in the hospital five weeks on account of her general constitutional condition, and we watched her urine, had her catheterized every week and sent a specimen to the laboratory, and in not a single instance was any pus found, nor were there any bacteria found in the urine. The last examination was made on the 3rd of January.

I likewise agree that cystitis from catheterizing patients in a well regulated hospital practically does not exist.

DR. T. J. WATKINS.—Though I have not made numerous systematic vesical examinations yet I have come to the firm conviction that all cases of cystitis are due to infection and that the infection nearly always occurs through the urethra as the result of catheterization. I have done numerous vaginal operations where the mucosa of the bladder was injured, possibly where the ureters were more or less injured, and in none of these cases did cystitis or symptoms of cystitis occur unless they were catheterized. It seems to me that nearly every patient that is catheterized gets cystitis; that is, if catheterized three or four times. Catheterization is an extremely difficult procedure to accomplish in a perfectly sterile manner. It is impossible to scrub the vulva and external meatus for fifteen or twenty minutes each time before introducing the catheter, and still we do not clean our hands without that much scrubbing. The urethra frequently contains some infection and that is carried into the bladder. Post-operative cases that are not catheterized do not develop cystitis and post-operative cases that are catheterized usually do so.

Dr. Emil Ries.—I see very little post-operative cystitis because I operate in a well regulated hospital, and because my patients do not get catheterized for the reason that I enable them to urinate naturally by having them get up. I have been following this method for over six years and no harm has been done. I let the patients get up or even get out of bed immediately after the operation, stand up, if necessary, after abdominal operations where the incision is sutured. Of course a patient who has six or eight clamps hanging onto the broad ligaments cannot do this. I should think as an estimate that ninety per cent. are never catheterized except on the operating table, the rest are catheterized once or twice at the earliest twelve hours after operation. I let them go twelve hours, let the bladder fill up, rather than catheterize. The operation which according to Wertheim's statistics has been the cause of producing the largest amount of cystitis, has not been followed by cystitis in my cases. I have let those patients get up like everybody else.

Dr. Kolischer in closing the discussion said: I am rather surprised to hear some of the speakers state that catheterization is invariably followed by cystitis. That is a statement which can hardly be upheld. In many hundreds of cases which I used in my cystoscopic classes, the same patients have been catheterized quite often and we never found any cystitis produced by this manipulation. Every experienced urologist will tell you that he had a number of cases in treatment where almost daily, or at short intervals, sounds were introduced in order to dilate strictures without producing cystitis. The mere introduction of an instrument into the bladder does not suffice to produce cystitis. Other causes must concur. Not even the presence of pus in the bladder is sufficient by itself to produce cystitis. I published such a case some ten years ago. This patient was the possessor of a pyosalpinx which had perforated into the bladder. For many months the pus proven virulent by inoculation streamed over the bladder wall without infecting it, because there was no retention.

As I pointed out in my paper, a simple desquamative catarrh is quite often mistaken for a cystitis. I am glad to hear that Dr. Frankenthal agrees with me that catheterization is not necessarily, and not even quite frequently, followed by cystitis. Dr. Ries tells us that, for instance, patients which are suffering from prostatic retention always become sooner or later, infected by catheterization. Every, even moderately experienced urologist, will tell Dr. Ries that his statement is entirely erroneous. If no other causes concur a patient can lead his catheter life without being infected for many years. The point which I wanted to make is this: A great many gynecological operations which necessitate the detachment of the bladder from the ureters can be performed without leading to cystitis. But it seems to me, judging from the facts I quoted, that exsection of the ureters creates a predisposition for cystitis. Wertheim, for instance, published a case in which the bladder never was entered by an instrument and still severe

cystitis developed a week after the abdominal cancer operation. All of the gentlemen who opposed my views simply overlooked the fact that I found cystitic areas around the implanted ureteral ends, and that implanted ureters are edematous and deprived of their contraction for a month.

A bladder which does not empty itself completely is not normal and it is very probable that one cause alone is not sufficient to produce cystitis. There has to be always a concomitance of causes.

DR. WILLIAM G. WILLARD read by invitation a paper entitled,

A CASE OF PREGNANCY IN A DWARF WEIGHING 39 POUNDS, ABDOMINAL HYSTERECTOMY.[1]

DR. R. W. HOLMES.—I thank Dr. Willard for the opportunity of examining this patient. At the time I wondered whether the fissures in the region of the right acetabulum were due to fractures or whether they were caused by non-union of the os innominata. I only had an opportunity to examine her superficially, she had been examined a number of times in days gone by and was tender, but it seemed to me that the fissure was such it might have been from non-union and not by fracture.

DR. FRANKLIN H. MARTIN read a paper entitled

OVARIAN TRANSPLANTATION AND RECONSTRUCTION OF FALLOPIAN TUBES, WITH REPORT OF TWO CASES, AND REVIEW OF LITERATURE.

The writer's investigations were begun in response to a request from a young woman whose ovaries had been removed without her consent during an operation, and who wished to restore the function of menstruation and her power to conceive, by having transplanted into her sterile pelvis the necessary organs taken from another woman in whom sacrifice of healthy structures might be necessary.

CASE I.—On July 25, 1902, he operated upon a woman thirty-seven years of age, who had borne three children, the youngest seven years old, but who had been suffering for some time from an impacted retroversion. Having obtained consent, he removed one-third of each ovary from this woman, taking the distal third from one ovary and the proximal third from the opposite, including with the ovarian tissue a portion of the broad ligament two centimeters in width in each specimen. He placed the specimens in hot normal salt solution for preservation, after which the broad ligament and the severed portion of the ovary remaining were drawn together by a running suture of cat-gut. The portions of the ovaries removed were approximately two centimeters in diameter with a portion of the broad ligament already referred to. After completing the operation upon this woman, the subject for transplantation was anesthetized and a preliminary dilatation of the uterus and curettement performed to render sterile the uterine

[1] See original article, page 289.

cavity. He then opened the abdomen and exposed an atrophied
uterus. The tubes and ovaries were absent, and projections of a
quarter of an inch on each side of the uterus represented the re-
mains of the Fallopian tubes. To reconstruct the remains of each
Fallopian tube, so as to have a pervious oviduct, he placed in the
uterus a metal uterine sound, in the bulbous end of which he had
constructed an eye, and this sound, with its bulbous extremity,
was forced well up into the angle of the uterus, opposite the im-
pervious tube. With the sound pressed well into the corner, he
split the amputated tube with a scalpel, until he came to the small
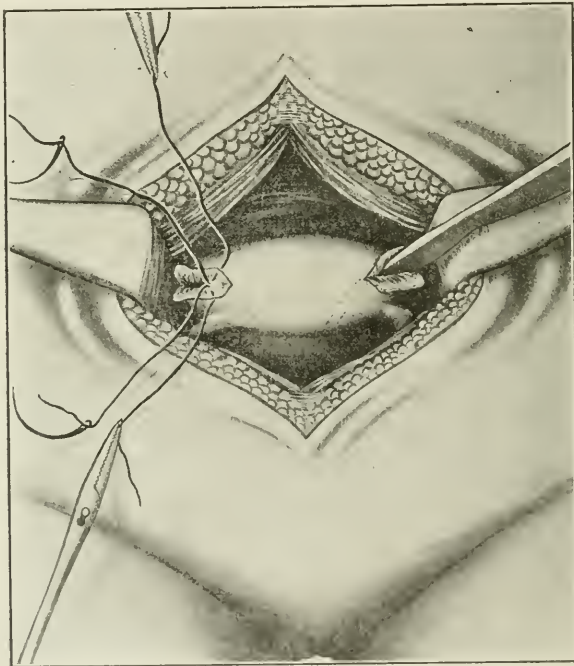
Fig. I.

line marking its mucous membrane, and until the sound, pressing
upon the mucous membrane of the uterus at its horn, showed
through the translucent mucous membrane at that point. (Fig.
I, left side.) To attach the endometrium to the peritoneal coat of
the uterus opposite it, he caught first, with a round needle into
which was threaded a small cat-gut suture, an edge of the perito-
neum, and then carried the needle deep into the tissue of the
uterus until it impinged upon the point of the sound deep enough
to grasp the mucous membrane of the uterus. (Fig. I, right side.)
This maneuvre was repeated at four different points surrounding
the bulging point of the sound until the peritoneal coat of the

uterus and the mucous membrane of the interior of the horn of the uterus were brought together, and then, between these sutures. the sound was forced through into the peritoneal cavity. (Fig. II, left side.) The peritoneum was then attached to the line of mucous membrane of the amputated tube in such a way as to give a mucoserous canal directly into the cavity of the uterus. He then threaded through the eye of the sound a No. 4 braided silk suture of sufficient length to enable him to draw the whole silk cord through the length of the uterus and vagina and have material enough for a portion of it to project into the peritoneal cavity to
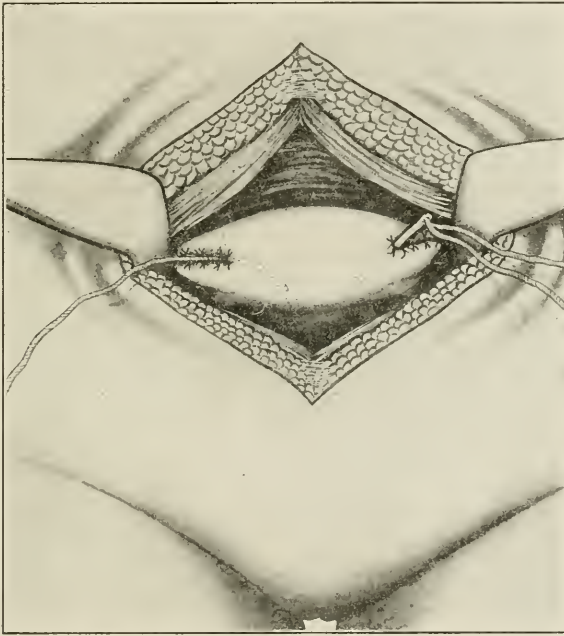
Fig. II.

the extent of one inch. The sound was then withdrawn and the suture brought out to the vaginal outlet, and a portion of it left to project into the peritoneal cavity about three-quarters of an inch. Splitting the broad ligament beneath the end of the amputated tube, immediately outside of the horn of the uterus, and at that point, hugging closely the tube and uterus, he attached one of the portions of ovary that had been removed for the purpose of trans-plantation. The raw surface of the ovary was placed in the raw surface made by splitting the broad ligament and the specimen was secured in this position by eight or ten interrupted fine cat-gut sutures. (Fig. III, left side.) The same procedure was carried out on the opposite side of the uterus. Before closing the abdo-

men, the silk ligature was laid carefully in contact with the ovary, projecting into the abdomen about three-quarters of an inch, as an additional means of keeping patulous the newly constructed oviduct, with instructions that it be removed at the end of two weeks, unless symptoms called for earlier interference. The toilet of the peritoneum was completed, the abdomen closed and the patient returned to bed. A loose packing of iodoform gauze was placed in the vagina, and an antiseptic pad applied over the vulva in order to protect the silk ligature which extended into the abdomen. The patient made an ideal recovery. At no time was there
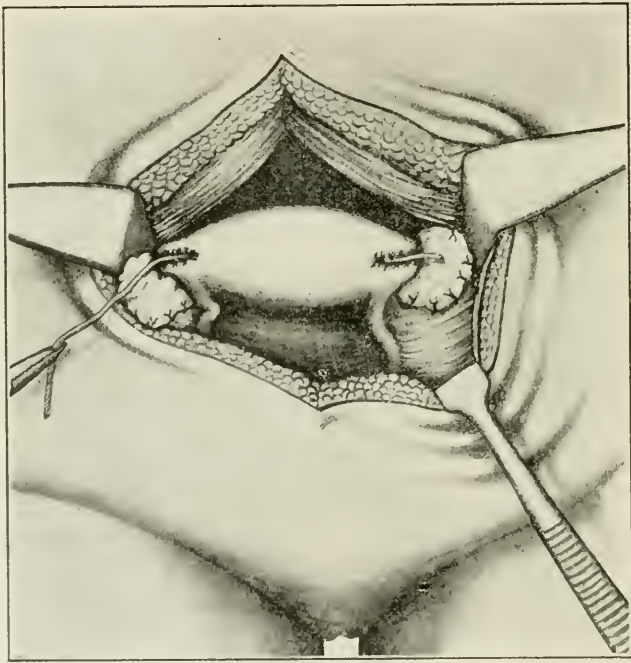
Fig. III.

any indication that irritation was resulting because of necrosis of the transplanted tissues.

CASE II.—Miss A., unmarried, æt. twenty-six years, a nurse, presented herself for an operation for transplantation of the appendages and repair of the tubes, about the middle of September, 1902, seeking to be relieved of nervous symptoms following removal of the appendages, one, two years previous to this date, the other a year and a half prior to this time. During the last year and a half menstruation had ceased, and she had been subject to extreme nervousness and hot flashes. On September 24, 1902, the writer transplanted about one-third of each ovary from a

woman upon whom he operated for chronic retroversion. This woman was twenty-five years of age and had been the mother of three children. The uterus was considerably atrophied. Operation was carried out in every detail as in Case I. Convalescence was ideal, with the exception of a temperature reaching 101° on the third and fourth days. On removing the portions of ovary from the salt solution where they had been lying in the intervals of the operation, the writer was startled at their paleness, but immediately after placing their denuded surfaces in contact with the exposed surfaces in the broad ligament they filled with blood by capillary action and became swollen and extremely pink.

On October 19, 1902, Case I wrote: "General health is as good as ever. Would feel all right if the bloating in the afternoons did not make me feel uncomfortable." October 22: "Have felt several times symptoms of menstruation. There has been a discharge this week resembling the white of an egg. Yesterday really expected to find that I was menstruating. Was bloated so I could breathe only with the upper half of the lungs. * * * have had hot flashes." November 16: "Twenty-eight days since the appearance of what seemed symptoms of menstruation. To-night the same symptoms appeared. Feel so full and uncomfortable." December 25: "There was apparently no change in my physical condition except sharp pains in region of ovaries." January 20, 1903: "For the past three days there has been pain in ovaries, also quite profuse discharge of mucus. Also drawing sensation in vagina. Have been very much more nervous of late." February 18: "Another month has passed and the discharge of mucus is the same as before, also some pain across me. Otherwise I feel perfectly well. At these times seem to tire more easily and occasionally have the old hot flashes." March 20: "There are no further signs of menstruation than noticed in previous months. Have bloated a good deal." April 19: "Have had some pain, much itching and burning sensation in the ovarian region, but other than that there is no change from other months. Am feeling real well most of the time." June 20: "Menstruated naturally."

About the middle of September, 1902, was the date of the operation on the second case. One month after the operation the patient expressed herself as being in good health and said she had had a week of sensations similar to those she formerly experienced as premonitory to menstruation. Three months after the operation patient said that for one week she had "had full feeling in the pelvis and pain inside and some free mucous discharge from the vagina." She also felt depressed. February 20, 1903, patient wrote: "I have been having more discharge than usual this week, and on Wednesday found a very little color, but the pain was almost unbearable. I don't believe that I ever had such a backache in my life."

The meagre report from the cases was gratifying in not being absolutely negative.

It was the writer's opinion that the operation described will make it possible to relieve, in a large number of cases, the nervous symptoms arising as a result of the establishment of a premature menopause following the sacrifice of the ovaries. It was further believed that this operation, with the reports in literature of lower animal experimentation, might demonstrate the possibility of re-establishing the menstrual and child-bearing function in women who have been obliged to sacrifice their ovaries and tubes. The writer's conclusions were: 1st. The operation of homo- or hetero-plastic transplantation of the ovaries in women or lower animals, is no more dangerous if accomplished aseptically than any other small plastic operation on the appendages. 2nd. Homo-transplan-tation of ovaries in women or lower animals will prevent the atrophy of the genitalia which usually follows castration. 3rd. Hetero-transplantation of ovaries in women or lower animals will prevent the atrophy of the genitalia which usually follows cas-tration. 4th. Transplantation of ovaries from one species into another may result in preventing the ordinary changes in the genitalia resulting from castration. 5th. Menstruation will con-tinue in women and monkeys after homo-plastic transplantation of ovaries. 6th. Conception has followed homo-transplantation in animals. 7th. Conception has followed hetero-transplantation in animals. 8th. Conception has followed hetero-transplantation of the ovaries in women. 9th. Transplanted ovaries in other lo-calities than the normal will maintain their vitality, functionate and prevent the ordinary sequelae of castration.

DR. A. MC. DERMED.—In the event of conception in the hetero-plastic operation it would be interesting to speculate as to whether the offspring would resemble the mother or the original possessor of the ovary. If maternal impressions affect the child would this ovum retain the characteristics, traits and disposition of its atavistic type, or in what degree would it acquire the characteris-tics of its new hostess. If the spermatozoon of the father trans-mits his characteristics of temperament, of physical appearance, etc., throughout the whole lifetime, you might say, of the off-spring, would not the ovum also transmit its original characteris-tics?

I feel very deeply interested in the subject presented and it has no doubt a useful purpose in relieving some of the unpleasant symptoms following the ablation of the ovaries in women, even if not successful in producing menstruation and conception.

DR. G. KOLISCHER.—In reviewing the literature of ovarian transplantation, we can easily divide the authors into two groups. The first group say transplantation is not only possible in the same individual or from one to the other, but the results are always most satisfactory. Just as well in animals as in women. The nervous symptoms disappear, menstruation is re-established, the animal and women become pregnant, never a failure, and never bad consequences. The other group appeal in their publications more to our judgment than to our optimism. There is no doubt

that we can transplant an ovary from one side to the other in the same individual, or from one animal to another of the same species. This ovary will live for a certain length of time but pretty soon it undergoes senile degeneration. Transmigration from one ovary to the tube of the other side is possible. In the cases reported of pregnancy after the ovaries have been removed, a part of the ovary of the same individual severed from its original connections has been replanted in the same individual. These reports do not prove much. We never can tell whether in these cases there was not an accessory ovary. As to the cases reported by Dr. Martin, I do not think that any observer would consider the discharge which he noticed in his cases as menstruation. I rather think these discharges are of the kind that will appear if inflammation around the appendages in the uterine ligaments is established. The regular monthly pains which Dr. Martin ascribes to his success in "vivifying the pelvis" as he calls it, will undoubtedly by any other gynecologist be considered as the mere continuance of the troubles so well known by gynecologists in patients who have lost their ovaries.

Dr. Martin's interesting report would become also interesting in a scientific sense if he would give exact reports of the present conditions of his patients, that is, the results of a careful bimanual palpation, that, for instance the uteri are increased in size without being sensitive to the touch, that there is no inflammation around the seat of the implantation. These reports would necessarily have to be completed by a microscopical examination of the discharge from the "vivified uterus."

Dr. C. S. Bacon.—I notice that Dr. Martin gave as one of the conditions in the selection of a substitute ovary that the woman who was to give the ovary should be of the same race. I suppose he made that condition because of the probability of the influence of the ovum.

I had supposed that the observations of Ribbert proved beyond any question the changes that occur in these transplanted ovaries. There is a degeneration and subsequent to that is a regeneration process. These observations seem to have been so carefully made that they are fully established. The same thing was observed by Schultze in his transplantation of ovaries into the male which were also successful.

Dr. Franklin H. Martin, in closing the discussion, said: Recent views have been against transplanting from another race because of the possibility of transmitting the race color and as there were no experiments to indicate whether that would occur or not it would not be safe to make the experiment in a human female. Second, there was the race prejudice. Lukaschewitsch conducted a series of experiments on animals beginning his experiments in 1897 and killing them in three years. He arrived at the conclusion that one can transplant an ovary from one animal to another, even from carnivorous to herbivorous animals and *vice versa*. The ovaries grew, received nourishment and performed their

function. To get a favorable result operation must be aseptic. The function of the transplanted ovaries is not of long duration and the ovary is inclined to senile atrophy. This short duration may be explained by insufficient nourishment. Notwithstanding this, well fixed ovaries on the broad ligament prevent for a few years atrophy of the genitalia and a tendency of the body to fatty degeneration and have a good influence on the general healthy condition. Pregnancy was not observed in any of his cases, although there was coitus.

One experimenter, speaking of the experiments and conclusions of this observer, remarked that in his experiments he found the center of the ovary was the last to become nourished. Its distance from the site of the graft was so great the circulation did not reach that point at all, therefore only the exterior of the ovary became nourished and the other portion disappeared. To offset that it has been suggested, and carried out by one experimenter, that small grafts be used, placing the grafts in the top of the broad ligament in rows, making them small so that circulation will reach all of the ovary transplanted.

Dr. T. J. Watkins exhibited

TWENTY-EIGHT SMALL FIBROIDS, REMOVED BY VAGINAL MYOMECTOMY.

The report of this case was interesting from a diagnostic and therapeutic standpoint. The patient consulted him for profuse menorrhagia, which had existed for six months. Examination showed the uterus to be about one and one-half times larger than normal. It seemed impossible to determine whether the enlargement was the result of an inflammatory process or the presence of a small tumor. The cervix was dilated with tents for forty-eight hours to permit digital exploration. On digital exploration, these small fibroids, twenty-eight in number, were found. They were principally submucous. Their removal necessitated incision of the anterior uterine wall from the external os to a point beyond the internal os.

After the tumors were enucleated, the uterine wound was sutured into the vaginal wound.

This case emphasizes the advisability of making a digital exploration of the uterine cavity in all cases of excessive menorrhagia, and especially when the condition is associated with an enlargement of the uterus.

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Rudolph W. Holmes, M.D.,

Editor of the Society.

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TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of June 3, 1903.

The President, DR. EDWARD MALINS, *in the Chair.*

DR. JOHN H. TEACHER read a paper on

CHORIONEPITHELIOMA AND THE OCCURRENCE OF CHORIONEPITHE-
LIOMATOUS AND HYDATIDIFORM MOLE-LIKE STRUCTURES IN
TERATOMATA,

and gave a demonstration illustrated by specimens and lantern
slides.

The author discusses and illustrates by drawings and photo-
graphs of microscopic preparations the nature and origin of
chorionepithelioma and its relations to the placenta, hydatidiform
mole, and certain tumors which are not related to a pregnancy,
but show the same histological characters. The clinical features,
difficulties of diagnosis and treatment, and certain facts which
appear to warrant a more hopeful prognosis than it has been the
custom to offer are also considered, and three new cases which
have been observed in Glasgow since 1901 are described.

The conclusions which the author sustains are:

(1) The so-called deciduoma malignum is a tumor arising in
connection with a pregnancy, and originating from the chorionic
epithelium (or its forerunner the trophoblast), which is of fetal
epiblastic origin (the view of Marchand).

(2) That these tumors form a quite characteristic group clin-
ically, pathologically, and developmentally, and that they should
be classified neither as sarcomata nor as as carcinomata, but as a
distinct group *sui generis*. The most appropriate name is chorion-
epithelioma. Malignant hydatidiform mole may be treated as a
variety of this disease.

(3) That in addition to the common tumors developing from
a pregnancy there are tumors containing precisely similar struc-
tures which are not connected with a pregnancy, and may occur
in other parts of the body than the uterus, and in either sex. The
most probable explanation of them is that they are teratomata,
originating from some structure which has the morphological
value of an included ovum, and the chorionepitheliomatous tis-
sues represent the actual trophoblast (chorionic epithelium) of
the included ovum.

LIST OF SPECIMENS.

LT. COL. A. STURMER (Madras).—Uterus removed from a
Hindu woman by vaginal hysterectomy, two years after labor.

Dr. F. W. N. Haultain (Edinburgh).—Uterus removed by vaginal hysterectomy for chorionepithelioma six months after passage of a vesicular mole, 1898. Patient well, 1903.

Dr. Horrocks.—Deciduoma malignum without syncytium. Death eight months after passage of a vesicular mole.

Dr. Briggs (Liverpool).—Two specimens of chorionepithelioma.

Dr. Thos. G. Stevens.—Chorionepithelioma five months after passage of a vesicular mole. Vaginal hysterectomy. Death in three days.

Dr. J. M. Munro-Kerr (Glasgow).—Chorionepithelioma following abortion. September, 1901. Curetted March and May, 1902. Then vaginal hysterectomy when diagnosis made.

Dr. F. W. Andrews.—Endosteal sarcoma of femur, showing syncytial structures.

Dr. Herbert Williamson.—Syncytioma of uterus from a patient who died three years ago, fifteen months after passage of a vesicular mole. Secondary growths (?) in lungs, liver and vagina.

Dr. T. A. Helme (Manchester).—Chorionepithelioma of uterus and metastatic growths in lungs.

Dr. James Ritchie (Oxford).—Embryoma of anterior mediastinum from a male aged 24, with secondary tumor in lungs.

Dr. Cuthbert Lockyer.—Chorionepithelioma of uterus with vaginal parametric and pulmonary metastases. Secondary growth appeared in labium two months after labor.

Dr. Herbert Spencer.—(1) Chorionepithelioma of uterus, cervix and lungs. (2) Case observed in Great Britain in 1889, published in France, 1895.

Dr. Russell Andrews.—(1) Chorionepithelioma of uterus. Specimen from London Hospital labeled cancer, etc., and in museum for many years. (2) Chorionepithelioma in uterus and vagina in woman aged 50, whose last confinement was eleven years before. Metastases in lungs.

Dr. W. H. Tate.—Chorionepithelioma of uterus removed by vaginal hysterectomy, following abortion eighteen months previous.

Dr. F. J. McCann.—(1) Chorionepithelioma of uterus with secondary deposits in vagina and lungs. Age, 46. (2) Chorionepithelioma of uterus removed by vaginal hysterectomy in 1901. Patient remains well. (3) Chorionepithelioma in woman of 53 years of age.

Dr. Galabin.—(1) Myxoma of fundus uteri following passage of a vesicular mole, curetted four times. Patient was well ten years later. (2) Vesicular mole showing syncytium partially differentiated into cells. (3) Carneous mole, exhibiting prolonged vitality of chorionic villi without malignancy.

Dr. Peter Horrocks considered the paper a valuable piece of work and an important contribution to the solution of a vexed question. It was necessary, however, to correct the statement that

this Society had, some years ago, come to a conclusion on the matter. As a fact, the Society never did come to conclusions. As recently as January, 1902, Dr. Lockyer had shown a specimen and had stated his opinion that there were two kinds of malignant growth associated with pregnancy, one a mesoblastic sarcoma of decidual, and therefore of maternal origin, and the other a syncytial carcinoma or chorio-epithelioma, and therefore of fetal origin. Dr. Lockyer stated that the malignant sequela of the vesicular mole was invariably a syncytioma.

Now, to-night, he (the speaker) exhibited a specimen which seemed to prove that this statement was incorrect.

The woman was moribund and only lived a week or two afterwards. She began bleeding during a pregnancy in the early part of 1902, and then was delivered of a vesicular mole. The bleeding stopped and she menstruated normally three times before bleeding set in, which it did last November, 1902. When she came into the hospital she had extensive cancer in the uterus, which reached as high as the navel, in the vagina from which nodules protruded so as to be visible, and in the lungs, giving rise to hemoptysis.

At the post-mortem examination the usual condition of things was found. But the chief interest in this specimen lay in the fact, that in spite of this being a genuine case of a sequela of hydatidiform degeneration of the chorion, yet no syncytium could be found in the growth nor in any of the secondary growths. Both had been carefully examined by his colleagues, Mr. Targett and Dr. Hicks (the Obstetric Registrar at Guy's). The specimen was shown and also microscopical sections, and the characteristics were more those of sarcoma than of carcinoma. One point was to be well noted, namely, that the woman menstruated normally three times after passing the mole, whereas in most cases, the patient never really got well after delivery, but kept on losing more or less as the disease progressed.

Still, it was a sequela, but whether post or propter, he could not say; only it must no longer be alleged that this form of growth following hydatid mole was invariably a syncytioma.

Again in 1901 he had shown a specimen of so-called "deciduoma malignum" at that Society, removed from a woman who was sent into Guy's with a history of miscarriage with subsequent hemorrhage, and she was operated on with the idea of removing retained products of gestation.

At the operation it was discovered that there was a growth in the body of the uterus, and so vaginal hysterectomy was done, and the patient recovered.

But this specimen was submitted to the Pathological Committee of the Society, and while fully agreeing that it was a typical syncytioma, they expressed their doubt as to there being any evidence of a recent pregnancy.

She was 47 years of age, and the history of miscarriage was by no means conclusive. She had a flooding and thought

it must be an early miscarriage, but it was doubtful whether she had missed a period, and there was nothing in the nature of an ovum ever seen. Hence, if it were assumed that this woman had not been pregnant recently, here you got a typical chorio-epithelioma, or a syncytioma with no fetal or ovular origin.

He did not feel that we were in a position yet to state that all these cases were of maternal or of fetal (ovular) origin. Indeed, he felt inclined to believe with Dr. Lockyer and others, that there were two kinds of malignant growth associated with pregnancy, one of decidual (maternal) origin of a sarcomatous type, for which the term "deciduoma malignum" was appropriate, and the other a chorio-epithelioma of fetal (ovular) origin of a carcinomatous type.

But he would like to ask two questions:

(1) Were all malignant tumors of the uterus following and associated with a pregnancy that contained syncytium, ipso facto, of fetal (ovular) origin, that is, did the presence of syncytium prove ovular origin?

(2) Was it possible for a malignant growth associated with pregnancy, to be of fetal (ovular) origin, and yet to be of the sarcomatous type without syncytium, or were all such growths of decidual or maternal origin?

DR. HAULTAIN said that while the Obstetrical Society did not commit itself as a whole to the opinions expressed in the discussion of 1896, yet the individual members, without exception, committed themselves to the sarcoma theory, and naturally this was accepted by the continental observers as the expression of British opinion, no other discussion of the subject having been published.

In 1898 a case of so-called deciduoma malignum had come under his care, this was cured by vaginal hysterectomy, and the woman was still well.

In consulting the literature at that time, he was much struck by Dr. Teacher's paper, describing Dr. Kelly's case, and on investigating the subject for himself, he had at that time absolutely adopted the view promulgated by Marchand, namely, the new growth in question was epithelial, and ovular in origin. Since then he had become more and more convinced of the correctness of that view, and absolutely concurred in what Dr. Teacher had stated. When he presented his paper before the British Gynecological Society in 1899, the general trend of expert opinion was just commencing to turn toward the adoption of the ovular origin, which was now very generally accepted. Everything pointed in this direction, the similarity of the cells of the growth to those of the chorionic coverings, and the frequency of the occurrence of the new growth after hydatid mole, which in itself was due to marked proliferation of Langhans' cell and the syncytium. It seemed to him there was no weak link in the chain of evidence. From the completeness of Dr. Teacher's demonstration, it was unnecessary, after stating complete concurrence, to enter further

into the pathology, but clinically there were one or two points of importance he should like to mention.

As regards the indication for radical treatment by hysterectomy, the simple demonstration of syncytial masses in uterine scrapings was not sufficient, particularly after the expulsion of a mole, as portions might be retained without assuming malignant action, and could be cured by curettage, as he had twice seen. When, however, violent hemorrhage was associated with the curettage, the prognosis was much more unfavorable, and the cavity of the uterus should be at once explored by the finger for the detection of a growth. He was much interested in the cases of spontaneous cure after metastases. This might be accounted for by the tendency of the growth to kill itself by the free extravasation of blood-choking cell growth, the particular rôle of these cells being to penetrate blood vessels and flourish in the circulating blood stream.

Dr. T. Arthur Helme (Manchester) expressed surprise at the sweeping character of some statements in the paper. He had understood Dr. Teacher to say that no case was on record, that supported the sarcomatous nature of these tumors, and that no "deciduoma" with solely sarcomatous tissue had been recorded, that all these tumors are chorionepitheliomata, and that he had never seen maternal tissues growing after a fashion at all comparable with the cells of these tumors. In order to clear the way for these opinions, Dr. Teacher ruthlessly brushes aside the maternal origin of those tracts of cells, which are to be found in the intervillous spaces, and which we have looked upon as "decidual" (maternal), and boldly says that they are all of trophoblastic or ovular production. In support of this, he (the speaker) had failed to hear any evidence adduced by Dr. Teacher, except the similarity of appearance of the cells, an unsafe basis of opinion, and a drawing, one of Dr. Haultain's preparations, which had been shown upon the screen: this drawing had been "made in Germany," and doubtless the artist had unconsciously allowed his imagination to tinge his product with the ideas which he wished to represent: that was not sufficient evidence for the important statement made. He (Dr. Helme) had brought to the meeting a specimen of "deciduoma" which had occurred in his practice some three or four years ago, but had not been recorded, as, on examination, he had found that it supported the prevailing opinion that these tumors might be of "decidual" origin.

On hearing Dr. Teacher's opinion of the impossibility of such an origin, he thought the specimen might be of some value, and though, in the short time at his disposal, he could not do the case justice, he would briefly allude to it and report the case more fully subsequently.

At the post-mortem there was found the tumor in the uterus with metastases in ovary, vagina, vulva and both lungs. The microscopic appearances of *all* the growths, primary and metastatic, were *identical*: tracts of huge cells, evidently of short life history,

with larger necrotic areas, wide blood spaces, hemorrhages, and fibrinous deposits; the cells, he supposed, Dr. Teacher would claim as the offspring of the cells of Langhans' layer, but he thought they were of decidual origin. He had been unable to find any of those spreading protoplasmic masses, characteristic of the syncytium.

Some years ago he had made observations upon the histology of the pregnant and puerperal uterus (especially in the rabbit), and if one thing had impressed him more than any other, it was the enormous hypertrophy, which the maternal connective tissue cells underwent, and he would call Dr. Teacher's attention to those huge plasmodia, of maternal origin, which were to be found, not only in the uterine, but also in the vaginal tissues. Shortly, he might state that the tumor which he now exhibited, resembled in its broad features the sarcomata, but at the same time, possessed special characters, which demanded that it should be placed in a special class, for which the name "deciduoma" seemed eminently suitable.

He claimed that this specimen showed the possibility of the decidual, i.e., connective tissue origin, of some at least of these tumors.

As to the chorionepitheliomata, the theory that we had differentiated in the chorion a stratum of tissue, which is neither fetal nor maternal, and which is capable of giving rise to a malignant growth in its host, which was neither sarcomatous nor carcinomatous, was fascinating, but before accepting a doctrine, which would so completely affect our views as to the origin of tumors, we should demand explicit proof, and it seemed to him that this would not be forthcoming until it was demonstrated that what we had considered to be cells of maternal (connective tissue) origin, were really of trophoblastic origin, and until the source of the syncytium itself was identified.

Dr. F. W. Andrewes expressed his agreement with the main thesis of Dr. Teacher's paper, viz., that the tumor formerly known as deciduoma malignum is of fetal origin and derived from the chorionic epithelium. He was, however, of opinion that the term "syncytioma" was preferable to chorionepithelioma, as being less cumbrous and expressing the striking histological feature of the growth without implying any theory of its origin. The term chorionepithelioma also tended to suggest a relation to the carcinomata which Dr. Teacher was anxious to avoid. He referred to the great theoretical importance of admitting the fetal origin of the growth, pointed out by Adami, inasmuch as the invading cells were derived from another organism and rendered the assumption of an adventitious infecting microbe unnecessary.

With regard to those syncytial tumors of the uterus, which appeared to have no connection with a pregnancy, he was of opinion that the ground was much less certain; the supposed teratomatous origin of such growths required careful scrutiny. It was necessary to show that an aberrant included ovum might

actually give rise to chorionic structures, and to find syncytial tumors arising in connection with undoubted teratomata.

Until the present meeting, he had never seen such proof. Both sarcoma and squamous-celled carcinoma might originate in dermoids, but Dr. Ritchie had shown that evening a syncytial tumor arising in a dermoid of the mediastinum in the male. Dr. Andrewes thought this the most important of the many valuable specimens shown at the meeting, but it was a rarity, and more such cases were needed to establish Dr. Teacher's position. It was not shown that these rare cases of syncytial tumor of the uterus, in which a pregnancy could be excluded, were so absolutely identical with the ordinary form that it was needful to invent an included ovum to explain them.

The acceptance of the view that ordinary syncytioma malignum is of chorionic origin, does not compel us to accept such an origin for every syncytial tumor. Syncytial sarcoma is not a very rare thing. (Two specimens of mixed-celled endosteal sarcoma of bone were shown under the microscope, containing immense syncytia, almost comparable with those of chorionepithelioma.) Might not the rare cases of syncytial uterine growth, having no connection with pregnancy, be perhaps of this nature? Such a possibility was an additional reason for preferring the term syncytioma to chorionepithelioma.

Dr. Ritchie (Oxford) described the case of a young man, who, during life, was considered to be suffering from a malignant tumor of the anterior mediastinum of three months' duration with secondary growths in the lungs.

Post-mortem, there was found in the region named, a mass, which consisted partly of a dermoid cyst, partly of a solid tumor, which microscopically had the precise characters of a chorionepithelioma. Secondary growths existed in the lungs, liver, and spleen, and had the same microscopic appearances as the solid part of the primary tumor. Dr. Ritchie considered that this tumor was to be looked on as a teratoma developed from an included ovum, the part of which corresponding to the trophoblast, had developed in a manner analogous to that part of the trophoblast, from which an ordinary chorionepithelioma may arise. He would welcome, however, the discovery of other similar tumors as the possibility of the dermoid part of the tumor having arisen from an epithelioma inclusion from the third branchial cleft, might be advanced.

In such a case the malignant part of the growth might be looked on as an angio-sarcoma of an accidental association. He had, however, never seen any tumor of those usually classed either as angio-sarcomata or endotheliomata, which at all resembled a chorionepithelioma.

Dr. W. E. Fothergill (Manchester) said that several questions had occurred to him during the reading of Dr. Teacher's most admirable and interesting paper. The author had defined the so-called *chorio-epithelioma* as a tumor of the uterus occurring in

connection with pregnancy. Would it be possible to retain this definition and at the same time to continue to include under the name *"chorio-epithelioma"* (1) growths occurring in the female but leaving the uterus perfectly healthy, and (2) growths occurring in the male subject?

The neoplasms in question had now been described as occurring in (a) the male subject; (b) the young female apart from pregnancy; (c) females suspected of recent pregnancy; (d) females known to have been pregnant recently; (e) elderly females not suspected of recent pregnancy. In the case of, for instance, a female with a problematic pregnancy followed by a "syncytial" tumor in the vagina, how would it be possible to say whether the growth was due to pregnancy or not?

Was it proved, as Dr. Teacher had asserted, that the trophoblast was a distinct histological entity? Could its presence be detected infallibly by inspection, and could a new growth derived from trophoblast be recognized as such?

The speaker understood Dr. Teacher to have remarked that cases in which actual chorionic villi were observed had a more favorable prognosis than those in which no villi could be found. Did not this clinical observation suggest that the cases investigated formed two categories? Might not the more serious be instances of new growth not causally connected with pregnancy, the less severe being examples of more or less pronounced invasion of the maternal organism by chorionic villi?

Dr. Teacher held that none of the cases reported gave any support to Veit's view that villi might be included within masses of new growth of maternal origin. Would it not, however, be easy to write descriptions of any, or indeed, of all the published cases in such a manner as to support Veit's theorem?

Dr. Teacher further considered Veit's view to be finally negatived by the demonstration of certain changes in the walls of blood vessels whose lumina contained chorionic elements. But could not similar changes in the walls of vascular structures be demonstrated in certain angio-sarcomata quite apart from the presence of chorionic structures? The above questions were some of those which had occurred to the speaker, but he had risen mainly in order to point out that the authors of certain papers referred to by Dr. Teacher appeared to have ignored the work of the late Dr. Kanthack and of Dr. Eden. For these gentlemen had long since pointed out the similarity between the so-called choriomata and other neoplasms, more especially certain growths of the testis. In the year 1896 they argued as follows: the testicular and other neoplasms in question are sarcomata, therefore, until conclusive evidence to the contrary is produced, we prefer to regard the similar growths of the uterus as being sarcomata also.

At the present time our attention was again being called to the similarity between the various neoplasms in question, but in the opposite sense. The uterine growths we were now supposed to have accepted as choriomata, therefore, the similar growths of

the testis and other organs we were told must also be choriomata. Eden and Kanthack had argued from the fairly well known to the unknown. The more recent authors had reversed the process; for it had by no means been proved that the growths in question were genuine embryomata. Granting that they were embryomata, the speaker thought that, if only out of consideration for the student of the future, care should be used in applying the same name to things so different as a chorionic growth affecting the mother, and an embryoma in a male subject. The theory expounded so clearly by Dr. Teacher was so simple and so attractive, one might say so fascinating in character, that it was sure to be accepted as a working hypothesis by all but the most sceptical critics. But, granting that all the growths in question were of ovular—of trophoblastic origin, would it not be well to adopt a nomenclature which would distinguish clearly those connected with pregnancy from those arising independently from that state? It was clear that a mother fatally invaded by the trophoblast of her own child would be a person of one generation killed by a tumor belonging to a person of the next generation—matricide in fact. But a man slain by an embryoma in his testis would be a victim not of his own child, but of a potential brother or sister—a case of fratricide —a very different matter, and one worthy of a different name. It was easy to say that an individual had a trophoblast, be he your child or your brother, but the statement would not be easy to prove. We were aware that a trophoblast was essential to the implantation in utero of certain mammalian ova, but who would say that a chorion was essential in the development of a dermoid cyst?   .

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of February 12, 1903.

The President, Dr. Porter, *in the Chair.*

Dr. Magnus A. Tate reported

A CASE OF ECTOPIC GESTATION.

March 5, 1903. I was called by Drs. White and Bledsoe of Covington, Ky., to see Mrs. Cora B., and obtained the following history: Age 25, married two years, always healthy and strong until present illness. Never had any diseases except those common to childhood. Feb., 1902, last menstrual period. From that time until March 7, 1903, suffered continual pain in abdomen. In Dec., 1902, or Jan., 1903, had an increase of pains somewhat analogous to labor pains which lasted for three days. Had never had any vaginal discharge until Feb., 1903, when she passed one

large clot of blood from the vagina, and had had no discharge
since then. Inspection showed an abdominal enlargement
regular in outline as though the abdomen contained a full-term
uterus, and presence of a well marked linea nigra. There was no
contraction or relaxation of the tumor. The latter was very large,
extending to the ensiform cartilage, but no child could be out-
lined. In the left inguinal region a very hard lump, the size of
an orange, could be felt. Auscultation negative, no fetal heart or
bruit could be heard. Vaginal examination could not be satis-
factorily made, on account of the great pain caused by the inser-
tion of the finger into the vagina. Under anesthesia auscultation
was still negative. Examination revealed a very small vagina,
and a bulging mass in the right fornix. The cervix was not in
its normal position, but up in the left fornix, and we were able
to feel it with much difficulty. The os was somewhat patulous
and soft, but there was no discharge from it. The breasts were
enlarged, the areolæ, primary and secondary, well marked, and
both breasts contained milk. Patient stated that during the past
three months the breasts had gradually diminished in size. We
were able to make a positive diagnosis of the existence of preg-
nancy, but were unable to state whether the child was in the
uterus proper or not, how long it had been dead and whether a
fibroid further complicated the case. Patient was sent to Speers
Hospital, and on March 7, 1903, assisted by Drs. Wenning,
Schultz, and Porter, I operated.

A median incision, seven inches in length was made. Upon
opening the abdomen, an enormous round mass came into view,
with adhesions over its entire posterior surface. Blood vessels
were enlarged and plentiful. The hard mass which was felt in
the left inguinal region was the uterus which had been pushed
over to the left side, and the large round mass filling the ab-
dominal cavity was that of an ectopic gestation in the right tube
and broad ligament. We decided to remove the child by opening
this tumor and so to reduce its size. The tumor was partly lifted
out of the abdominal cavity after separating some of the adhesions
to peritoneum and intestines, and the upper part of the abdominal
wound was closed by four through-and-through silk-worm gut
sutures to keep the intestines from bulging out. Large gauze
pads were used to pack around the gestation sac where possible,
and so protect the abdominal cavity from septic fluids. Upon cut-
ting the ectopic sac there was very little bleeding, but as soon as it
was opened, a half-pint of dark colored fluid covered the field.
The child was extracted feet first. The remaining cavity was im-
mediately packed with gauze, and the opening closed with hooked
clamps. In removing the sac mass considerable difficulty was
encountered, as the adhesions to its posterior wall were quite
numerous. Although removal of uterus, left tube and ovary would
add to the shock of the operation, complete hysterectomy was per-
formed in order to do away with the danger of septic material
being left in the raw stump. The abdominal cavity was mopped

with hot salt solution and then all gauze pads were removed and the abdominal cavity thoroughly flushed out. We were unable at this time to close the abdominal wound, on account of numerous tears in the peritoneum extending along the sides of the vertebral column. These were closed by a running catgut suture and gauze vaginal drainage was employed. After all bleeding was checked, the abdominal cavity was again irrigated with hot salt solution and was closed with through-and-through silk-worm gut sutures. Time of operation one hour and thirty-five minutes.

Patient rallied; temperature at 8 P. M. the same day 100 and pulse 90.

The following morning temperature normal, pulse 90. No abdominal distention was found. Patient's condition seemed very favorable. That afternoon at two o'clock the pulse went up to 120 and became very irregular. Norwood's tincture of Veratrum viride 20 drops, was given hypodermatically, this was repeated three times at intervals of 40 minutes with no effect, and the pulse became more and more irregular and rapid. At 5.30 P. M. there occurred a large movement of the bowels and soon after the patient became pulseless. The respiration remained good, skin was not covered with clammy perspiration, and the extremities were easily kept warm by hot-water bottles. The patient wanted to converse with the nurses, but was almost deaf so could not understand orders. Artificial stimulation, by means of whisky, digitalis, and strychnine hypodermatically, salt solution under both breasts and whisky and egg per rectum; afterwards carbonate of ammonium per rectum. Patient remained in the same condtion for 24 hours, never losing consciousness, never with rapid breathing, but it was only occasionally the slightest radial pulse could be felt. At the end of 24 hours that is about 5.30 P. M., March 9th, she began to slowly improve and at 8 P. M. the pulse was strong though irregular. She remained in this condition until a little after midnight, when suddenly she again became pulseless. Stimulation was ineffectual, and she died a little before one o'clock March 10, 1903.

From the above history, time of probable pains in December, 1902, or January, 1903, and appearance of child I judge that it had been dead from three to four months. Measurements of the child were: Length 50 cm.; circumference of hips 28 cm.; occipito-mental circumference 35 cm.; occipito-frontal circumference 30 cm.; occipito-mental diameter 11 cm.; bi-parietal 10 cm.; weight 6 lb. 1 oz. Sac wall which was nothing more than a decomposed rotten mass, measured from one to three inches in thickness and weighed 3½ pounds.

DISCUSSION.

DR. J. AMBROSE JOHNSTON had seen only one case in any way similar to this, and in that case he made an abdominal incision and removed the fetus which was seven or eight months old. At the

time of operation he did not remove the sac or placenta, but fastened the sac to the abdominal wound and allowed the placenta to remain. In two or three days he scraped the placenta away with the fingers. He thought it would have been preferable had he made an opening through the vagina into the sac and removed the fetus and placenta in that way. This is very easy to do because the posterior wall of the vagina bulges in these cases and the uterus is pushed forward against the abdominal wall. This method would give better drainage than operating from above, the drainage being down-hill and pumping and washing out the cavity unnecessary. In all cases where the fetus had been dead for several months it was better to evacuate the contents through the vagina, and so avoid all danger of infecting the general peritoneal cavity, and all shock. In cases of advanced pregnancy and extensive inflammatory exudate matting everything together it was almost impossible to separate the sac from the intestines without making large denudations. In such cases any septic material present would be taken up very rapidly into the system. He would not be surprised if some such condition existed in Dr. Tate's case without presenting marked symptoms such as a very rapid pulse with high temperature.

Dr. J. Ambrose Johnston said in reply to Dr. Gillespie's remarks, that it was very easy to deal with these cases in the manner he had mentioned. The uterus was pushed up against the abdominal wall and was thoroughly out of the way, while the posterior part of the vagina which was pressed upon by the mass, bulged distinctly. In his own case this region was very much stretched and the walls were so thin that the fluctuation of the fluid could be felt through it. It was very easy to make an incision and remove the contents of the sac, and there was not the slightest danger of touching the ureters. As a rule the fetus was very soft and when dead it would mould itself to any opening which was made.

Dr. Arthur W. Johnstone had seen but one of these cases. Dr. Tate's case reminded him of one, which he had seen where the fetus had developed so that it reached the umbilicus and the uterus was crowded down into the pelvis, and was so squarely in the way that it would have been impossible to remove the fetus through the vagina. No two cases were exactly alike. The tube might rupture into the broad ligament and deliver itself through the vagina spontaneously. There were the two extremes: the fetus might lie far up toward the umbilicus, or down in the pelvis, and the method of dealing with these cases must be adapted to the individual case. To take the middle course again he believed in draining in both directions, that is circular drainage. Statistics showed that the less operating done after the fetus was removed the better were the chances for the patient. After removing the fetus through an abdominal incision, he would also make an opening through the vagina. In ordinary cases he would drain with gauze and a tube, but if the case was very bad he would use a well perforated bridle tube coming out through the abdomen and

vagina, the ends of the tube being tied together. There was no doubt that sepsis carried off the case reported by Dr. Tate.

Dr. Chas. L. Bonifield had seen Dr. Tate's patient at Speers Hospital. He agreed with the last speaker that she died from sepsis. Whether to operate on these cases through the vagina or the abdomen depends first, upon the location of the fetus and membranes, and second, on the time of the pregnancy, whether the child is alive or not. In an unruptured or recently ruptured case he had no use for the vaginal operation. He would open the abdomen and see what he was doing. Where there was an ectopic gestation within the pelvis which could be easily reached from the vagina and where there was every reason to believe that the fetus was dead, he agreed with Dr. Ambrose Johnston that the vaginal route presented many advantages. He did not however believe that it was at all applicable in Dr. Tate's case. In the first place the Doctor was not sure of the diagnosis. The history of ectopic gestation was not complete, and the evidence of false labor was very slight. Under these circumstances he did not see how one could conscientiously have tried to extract the contents of the sac through the vagina. He had recently seen a case of ectopic gestation probably of six to eight weeks' duration and with a ruptured tube and a hemorrhage of possibly a quart of blood into the peritoneal cavity. The patient had absolutely no shock; the pain also was very slight. Upon examination a mass was found at the side of the uterus and a history of one month's missed menstruation obtained. The passing of some membranes from the uterus led to a belief that the patient had an ectopic pregnancy. The abdomen was opened and a little rent was found in the tube from which the hemorrhage had taken place.

Dr. Thad A. Reamy had operated on a case similar to that narrated by Dr. Bonifield in which there was no history of shock. The fetus obtained indicated a pregnancy of about ten weeks. When he saw the patient there was considerable enlargement which extended around from the region of the bladder to the tubes and it was a question whether or not it was some form of abdominal tumor. He made an opening posteriorly to the uterus, the mass bulging downward, and inserting his fingers removed at least a quart of clotted blood and some fresh fluid blood. This patient made a good recovery and had had two children since.

Dr. Magnus A. Tate, in closing the discussion, said that in a case where a positive diagnosis could not be made, where nothing was known as to the existence or non-existence of complications, as in the case reported, it would be folly to attempt a vaginal section. Again it would have been impossible to deliver such a mass per vaginam with the numerous adhesions to intestines which existed here. It was true some cases were delivered by the vaginal route, but he believed it better in the majority of cases to operate through the abdomen. There was no doubt that profound sepsis was the cause of this unfortunate woman's death.

REVIEWS.

GYNECOLOGY. A Text-book for Students and a Guide for Prac-
titioners. By WILLIAM R. PRYOR, M.D., Professor of Gyne-
cology in the New York Polyclinic Medical School; Attend-
ing Gynecologist New York Polyclinic Hospital; Consulting
Gynecologist St. Vincent's Hospital, New York City Hospital,
St. Elizabeth's Hospital. Pp. 380, with 163 illustrations in the
text. New York and London: D. Appleton & Co., 1903.

This brief text-book of gynecology, in contrast with many more
ponderous works upon the same subject, shows the stamp of the
author's teaching. It is distinctly a volume for students and for
the class of postgraduate students with whom the writer comes
into contact. It is so arranged that the earlier chapters treat of
disease in a general way, the later chapters including only the
description of operative procedures. Only selected operations
and lines of treatment favored by the author are described, for
example the only operations for retrodeviation suggested are
Matthew Mann's intra-abdominal shortening of the round liga-
ments, hysterocystorrhaphy, Alexander's operation, and the
author's operation through the posterior vaginal cul-de-sac. Such
limitation of choice of procedures makes the book especially suit-
able for use by the general practitioner in the country, who is
dependent upon his own resources and such assistance as a work
of reference can afford, and who is likely to be only confused by
a multiplicity of possibilities in the line of therapy. The book
is what it aims to be, distinctly practical. As this is its object it
would be manifestly unfair to criticize the absence of pathologi-
cal and bacteriological information, and to stamp the work as
unscientific. As a reference book for advanced students it would
of course be utterly inadequate. For the country physician, the
general practitioner, and the undergraduate student its concise-
ness, clearness, and simplicity recommend it highly. Its illustra-
tions are in keeping with the purposes of the work.   H. D.

THE DIAGNOSIS OF DISEASES OF WOMEN. A Treatise for Stu-
dents and Practitioners. By PALMER FINDLEY, B.S., M.D.,
Instructor in Obstetrics and Gynecology Rush Medical Col-
lege, in Affiliation with the University of Chicago; Assistant
Attending Gynecologist to the Presbyterian Hospital, Chicago.
Pp. 494, illustrated with 210 engravings and 45 plates in colors
and monochrome. Lea Brothers & Co., Philadelphia and New
York, 1903.

Of a type totally different from the preceding work is the
present volume. Devoted strictly to the diagnosis of affections of

the genito-urinary tract of woman, it presents this subject far more fully than even the large general text-books of gynecology. Microscopical and bacteriological methods naturally receive the attention which they demand in this connection. The text is not limited merely to the clinical and laboratory methods of diagnosis, however, as these are prefaced in each instance by introductory remarks upon the historical and etiological features which are of distinct diagnostic importance. Diagnosis of uterine pregnancy is included, in preparation for the discussion of ectopic gestation. While comprehensive, the work is so free from superfluous historical references and obnoxious discussions of priority as to be of value to those in general practice as well as to those whose attention is devoted to the special field of gynecology.

H. D.

MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D. C., and in the University of Vermont, etc. Ninth edition, revised and enlarged. Pp. 622, with 275 illustrations. Lea Brothers & Co., Philadelphia and New York, 1903.

The ninth edition of an American text-book for students requires no introduction. It maintains its elementary character and shows evidences of enlargement and some revision. A few new cuts have been borrowed from other works, but most of them are time honored. Its failings are chiefly a disregard for little practical points, as in the advice to use bichloride solution for washing the hands, perineum and advancing head during the second stage, rather than some such solution as lysol which lubricates rather than dries, completing forceps delivery of the head without removing the instrument, etc.

H. D.

A THESAURUS OF MEDICAL WORDS AND PHRASES. By WILFRED M. BARTON, M.D., Assistant Professor of Materia Medica and Therapeutics, and Lecturer on Pharmacy, Georgetown University, Washington, D. C.; and WALTER A. WELLS, M.D., Demonstrator of Laryngology and Rhinology, Georgetown University, Washington, D. C. Pp. 534. W. B. Saunders & Company, Philadelphia, New York and London, 1903.

This unique work is a boon to the medical writer, whose vocabulary it enlarges without undue expenditure of time, and incidentally to his readers. Its chief purpose, however, is to supply words lost to memory temporarily. This is accomplished by reference to some synonym or to the name of some anatomic part or of a function, etc., with which the desired term is associated. The book will perform another service in its rôle of glossary, in interpreting the meaning of those writers who are too fond of employing a class of words known only to lexicographers. Its possession is recommended further to representatives of the lay press, as there would really seem to be no valid

reason why their articles upon medical subjects should not be so worded as to be intelligible to the profession as well as startling and edifying to the general public.

A Reference Hand-book of Medical Sciences. By various authors. Edited by Albert H. Buck, M.D. New edition. Vol. VI. Imp. quarto, 1012 pages, 764 engravings, nine full-page plates in black and color. William Wood & Company, New York, 1903.

The sixth volume of the new edition is the largest of the series thus far. The contents are of the same high standard as in the previous volumes, concise and clear. It is hardly possible to select for separate mention any particular articles on account of the large number and variety of subjects mentioned.

In a well illustrated article, Simon H. Gage describes the histogenesis and histology of muscle, both striated and non-striated. The pathological conditions of muscle tissue are discussed by Lydia M. Dewitt, while the anomalies are described by Francis J. Shepard. The anatomy and diseases of the nasal cavities are very thoroughly treated of by a number of well-known writers. The lesions are clearly described and the best medical and surgical treatment indicated. Hunter Robb, in his article on ovariotomy, advocates immediate operation as soon as one is satisfied that an ovarian tumor exists, unless there is good reason to believe that a delay will benefit the patient. The growth and histology of the ovum is described by Robert Payne Bigelow in a well illustrated article in which he traces the growth of the ovum down to the time of maturition. Other interesting and instructive articles are those on poisonous plants, by Henry H. Bushby; on poisonous reptiles, by Gustave Langmann; and on poisons, by Charles Harrington and R. H. Chittenden. Harrington finds it impossible to give a concise definition of the term poison. To the layman a poison is any substance which, when administered in small doses causes disturbance to health or destruction to life. In a legal sense it is any substance of a destructive or noxious character, whatsoever its nature or mode of operation, which taken into the system, produces injurious or fatal effects. He discusses the subject in a general manner, giving the mode of absorption and of elimination, the general diagnosis and post-mortem appearances, and directions for making a chemical examination. R. H. Chittenden writes upon the absorption and distribution of poison in both acute and chronic cases. The distribution of a poison will often aid in deciding whether the poison was taken in small doses or one or two large doses; especially is this true with arsenic. The subject of resection of joints, by Frank Hartley, is another particularly well written and illustrated article. In it he gives the methods of operation and the results to be expected. Students and practitioners of medicine will find this series of great value, particularly in referring to those subjects not, as a rule, covered by the regular medical works.

BRIEF OF CURRENT LITERATURE.

Chorea in Pregnancy.—Cecil Wall (*Jour. Obst. and Gyn. Br. Emp.*, June) finds that chorea in pregnancy seems to be determined by mental display, overstrain or shock. Secondly, the determining cause is only effectual when it acts upon a brain whose power of control is somewhat lowered by the pregnant state, and in addition is unstable in consequence of (a) antecedent chorea; (b) antecedent rheumatism or other similar debilitating conditions; (c) a defect in development. In the majority of cases pregnancy continues undisturbed; the tendency to the occurrence of spontaneous abortion has been exaggerated, as has also the importance of insanity. In subsequent pregnancies there is not necessarily chorea. The treatment consists chiefly in insuring quiet and sleep and providing good nursing and full feeding, especially with carbohydrates. Light massage is in some cases exceedingly useful in procuring sleep. If a cause can be found, as anxiety or worry, it must be removed. The treatment by bromides is bad; if a sedative is needed, chloral hydrate or chloralamide is probably the best. Alcohol is exceedingly useful in some cases, but should not be given if continued doses of arsenic are being administered. The induction of abortion is seldom needed and frequently fails to save life.

Sign of Multiple Pregnancy.—Jentzer (*Zentralbl. f. Gyn.*, No. 17) mentions as a hitherto undescribed sign of multiple pregnancy the sensation obtained when two fetal heads are knocked together in utero. He describes it as like that given by knocking two billiard balls together under water. In his case it was of no dignostic value as he had already palpated two heads and backs. The woman gave birth to triplets.

Abdominal Pregnancy.—Charles P. Noble (*Phil. Med. Jour.*, May 30) describes a case of abdominal pregnancy of twenty-one months' duration on which he operated successfully. The fetus was in an excellent state of preservation.

Etiology of Tubal Pregnancy.—Micholitsch (*Zeitschr. f. Geb. u. Gyn.*, Bd. xlix., H. 1) has studied the specimens from about thirty cases of tubal pregnancy in the Bettina-Pavilion, of which he reports ten. In no case was the ovum found implanted in a normal tube. The abnormalities were either congenital or acquired. In every instance the deformity had caused mechanical obstruction to the passage of the ovum: folds of mucosa, secondary lumina, or pockets in the tube. In the early cases he claims to have been able to determine that implantation had occurred in one of the accessory lumina. He believes the presence of secondary lumina and pockets in the tube to be the

chief cause of tubal pregnancy. In the cases in which the opposite tube also could be examined he found similar changes, showing that the tubal lesions were not secondary to the development of the ovum, but preceded its implantation. The relation of this bilaterality of tubal lesions to recurrence in the other tube is worthy of consideration.

Bilateral Extra-Uterine Pregnancy.—The case is reported by A. Psaltoff (*Ann. de Gyn. et d'Obst.*, May). The woman thirty-five years of age, had been married eighteen years and had had seven children at term, the last seven years before the present time. Always well, menstruation regular. Three years ago menstruation was delayed a few days and she then had abdominal pain and vomiting for twenty-four hours. These then diminished and returned fifteen days later, less severe, but with slight metrorrhagia. The pain continued for five or six months, with amenorrhea. Since then all symptoms disappeared and menstruation and general health had been normal until four months ago, when the pain, vomiting and amenorrhea returned. Through an abdominal incision he removed a fetus of five months from the right tube, which had not ruptured into the peritoneal cavity at least, although no statement is made as to whether this had occurred in any direction. With the left tube he removed a mummified fetus of nearly five months' development, which had remained in the tube for over three years.

Repeated Tubal Pregnancy.—Karl Reifferscheid (*Zentralbl. f. Gyn.*, No. 22) records two cases of repeated tubal pregnancy. Regarding the etiology he states that in one case an inflammatory process after an abortion had resulted in the formation of adhesions sufficient to cause kinks in the tube. In the other instance there was no obvious cause for the abnormal situation of the ovum.

Double Ectopic Gestation in the Same Tube.—The interest of a case reported by Ersilio Ferroni (*Zent. f. Gyn.*, No. 9), lies largely in the fact that the two ova which had occupied the same tube were apparently not of the same age. The patient was 32 years of age, a multipara, whose last puerperium had been accompanied by fever and pain in the left lower quadrant of the abdomen. Regular menstruation until three months before the operation, then irregular bleeding followed by amenorrhea for over a month. This was succeeded by pains radiating to the loin and upper part of the thigh, preceded, accompanied and followed by quite profuse bleeding, which intermitted between the attacks of pain. Through an abdominal incision the left tube and ovary were removed. The appendages of the right side appeared normal. The left tube contained two enlargements, the greater near the uterine extremity of the tube, the other reaching nearly to the ovary. Both were found to have formerly contained ova, but the villi in the larger swelling showed more advanced development of the villi. The appearances seemed to indicate that impregnation of the ovum situated farther from the uterus had occurred three or four weeks after the development of the other had been

under way. The writer assumes that this was due to external migration. The portion of tube between the fetal sacs as well as the rest of the uterine and abdominal portions exclusive of that occupied by the sacs was practically normal.

Half Symphyseotomy.—In a case of generally contracted pelvis, Diehl (*Münch. med. Woch.*, No. 14), was unable to cause the head to engage without performing symphyseotomy. With the idea that incomplete division of the pubic symphysis would result in early and firm union, and that the head might be made to engage if the pelvic inlet was enlarged, he limited the division to the upper half of the symphysis. Aided by external pressure the head entered and passed through the pelvic cavity.

Artificial Rupture of the Membranes.—G. Gibb (*Scot. Med. and Surg. Jour.*, April) advises the rupture of the membranes early in that condition known as hydramnios as otherwise the labor is apt to be exceedingly tardy. In no class of cases is this maneuver more valuable than in primiparæ, where the head lies from the commencement very low in the pelvis, almost on the perineum, where the os is but slightly expanded and where the cervix is much thinned out and the forewaters are scanty. Another class of cases where the artificial rupture of the membranes is of value is where the uterine contractions are deranged by concealed internal hemorrhage. Where there is a sausage-shaped bulging of the membranes through a narrow os, rupture the membranes at once. In multiparæ where the head lies high up, the cervix is not thinned out, and the membranes do not become sufficiently tense, rupture the membranes.

Dystocia Due to Multiple Exostoses.—C. Porak and C. Daniel (*Comptes rendus de la Soc. d'Obst., de Gyn. et de Pæd. de Paris*, April) report an interesting case of dystocia due to exostoses of the pelvis. Labor was terminated by symphyseotomy. The woman was twenty-one years of age. Since she was two or three years old there had been hard nodules on the lower extremities and trunk. There was no family or personal history of syphilis, tuberculosis or nervous affections. There were found more than fifty exostoses symmetrically placed, especially on the long bones, but also on some of the flat. They were situated at the epiphyseal ends of the long bones or over the bony-cartilaginous junctions, such as on the sides, along the crests, and the edges of the iliac bones. A number of exostoses projected into the pelvic cavity.

Treatment of Incarceration of the Gravid Uterus.—Walter Albert (*Münch. med. Woch.*, No. 12) advises the insertion of a colpeurynter, which is then filled and left over night, in cases of incarceration of the retroflexed gravid uterus. Five illustrative cases are reported. Although he usually leaves the bag in place over night, this is not always necessary as was shown by one case in which a uterus, incarcerated for three weeks was replaced in two hours. The writer would use this method at first, or if slight

efforts at manual reposition fail, as strong pressure may cause abortion.

Lacerations Sustained During Labor.—Wm. E. Ground (*Amer. Med. Jour.,* June 6) concludes that almost every woman suffers injury during confinement, from which she does not recover unless she is subjected to a secondary operation for the repair of lacerations of the pelvic floor. Immediate suture of apparent lacerations does not restore pelvic support in the vast majority of instances. Unrepaired lacerations of the pelvic floor should be operated upon from one to two months after labor.

Rupture of the Uterus.—The statistics upon which a paper on the etiology, prophylaxis and treatment of rupture of the uterus during labor, by Nicolas Ivanoff (*Ann. de Gyn. et d'Obst.,* May) is based are those of the maternity of Moskow from 1877 to 1901. In 118,581 labors there were 124 cases of rupture of the uterus. The treatment employed was in every case the same. It consisted in the application of a compressing bandage and an ice-bag, and usually packing at the site of rupture with iodoform gauze. Of the 124 cases, 98 died, a percentage of recoveries of only 21. The rupture was complete in 58 cases, and of these only 7, or 12 per cent. lived. Among 43 incomplete ruptures there were 16 cures, or 38 per cent. The mortality of the children reached 87 per cent. Kolomenkin's collection of selected cases showed 39 per cent. of recoveries from uterine rupture after conservative treatment, and 53 per cent. of cures by operative measures (laparatomy and suture, Porro operation, abdominal or vaginal hysterectomy). Combining these statistics with those of the writer, gives a percentage of successes reduced to 29 per cent. as opposed to the 53 per cent. of recoveries after operative treatment. Excluding, in Kolomenkin's series, those cases in which the uterus was sutured, the cases treated by operation would show 64 per cent. of cures. This method, which involves suture of a wound which is frequently ragged and often infected, gave only 20 per cent. of successful issues in the series referred to. It is suitable only in cases in which the rupture occurs from violence and in a position where sutures can be satisfactorily inserted, and in which the uterine wall has not been subjected to rubbing and crushing against the pelvic bones. The figures given speak strongly in favor of active operative treatment of rupture of the uterus during labor.

Puerperal Eclampsia.—W. E. Fothergill (*Med. Chronicle,* March) states that in attempting to forecast the end of a case of actual eclampsia it is not wise to attach too much importance to the number of fits, as they not only vary with the quantity and nature of the poison, but also with the nervous equilibrium of the patient. The occurrence of convulsions after labor points to the persistence of a grave state of affairs, and should never be treated lightly. The most favorable cases are doubtless those in which convulsions occur actually during labor and initiated by some definite external stimulus such as obstetric manipulation. The quan-

tity of albumin in the urine is a false guide, as in certain cases there is no albumin; the quantity of urea affords a much more reliable criterion. When there are symptoms and physical signs of toxemia during pregnancy, active treatment should never be omitted. Rest in bed, copious drinks of water, milk diet, purgatives, rectal lavage, hot baths and hot wet packs are all useful. Thyroid substance is of use in some cases to excite diuresis. The urine should be examined periodically and if the output of urea is low simple measures should be taken to increase it, and if these fail, more active ones. If the patient fails to respond to treatment, pregnancy should be terminated. In the presence of convulsions and coma, saline transfusion and bleeding are indicated in addition to more ordinary aids to elimination. Morphine may be given to reduce irritability of the nervous system or to aid elimination. Rectal lavage and hot wet packs may be used during coma, as well as before and after. The slow induction of labor before an attack has occurred, or after one attack has been tided over, is the best method of terminating the pregnancy. Accouchement forcé is objectionable.

John T. Wheeler (*Alb. Med. Ann.,* June) is of the belief that all pregnant women should be taught to examine their urine for albumin at set intervals, and upon the finding of albumin notify the physician at once. This is of especial value in patients who reside at a distance, are poor, or have had eclampsia before.

Robert Jardin (*Edinb. Med. Jour.,* July) reports five cases of eclampsia treated by saline infusion. In all of the cases relief was obtained and all recovered except one, which died of pneumonia. Two pints of saline solution were used, and 4 oz. of magnesium sulphate given by stomach tube, also a hot pack applied.

Puerperal Septic Infection.—Upon the development of septic infection, Edw. P. Davis (*Phil. Med. Jour.,* May 23) cleanses the vagina and uterus as thoroughly as possible. All ulcers upon the vulva and vagina are cauterized with carbolic acid and iodine. The vagina is thoroughly sponged out with one-percent. lysol solution or bichloride 1-4000. The uterus is thoroughly scraped with a blunt-edged curette. This must be done gently to avoid wounding the uterus. This exploration may be accomplished by prolonged irrigation of the uterus with lysol, or one-per-cent. creolin, or normal salt solution. One gallon at a temperature of 100° F. should be used. Should this procedure excite bleeding, the uterus is packed with ten-percent. iodoform gauze and the gauze removed in forty-eight hours. To relieve the abdominal pain, applications of cold may be made over the uterus; this may be combined with counterirritation. The intestines are promptly emptied by salts or compound cathartic pills, the kidneys excited by calomel if their action is deficient. Strychnine and ergot are valuable tonics and stimulants, alcohol in full doses acts as a sedative and induces sleep. If an analgesic drug is demanded, opium is given hypodermatically. The patients must be liberally fed and an abundance of water given. In serious

cases the absorption of normal salt solution, whether from the bowels or by hypodermoclysis is of undoubted value. Collections of pus should be emptied in whatever situation and in whatever organ they occur. Hysterectomy is justifiable only in those exceedingly rare cases in which an infected placenta cannot be removed from the uterus.

The line of treatment for acute puerperal infection laid down by John W. Byers (*Brit. Gyn Jour.*, May) is the following: Sloughy torn edges and vaginal ulcers should be well powdered with equal parts of iodoform and boric acid or with one part of europhen to six of boric acid. If the lochia are foul a simple vaginal douche at the very onset of fever should be followed by a large intra-uterine douche in the proportion of one teaspoonful of salt or half a teaspoonful of creolin to a pint of boiled water. The external genitals should be carefully sterilized and the uterus drawn down to the vulva so that the douche nozzle enters the uterine cavity without vaginal contamination. If the temperature rises on the next day the uterine cavity should be digitally explored. If the cervix is markedly patulous, and if one feels any foreign mass in the uterine cavity, of if there is the sensation of soft tissue which seems to break down on pressure, the blunt flushing curette should be employed and the uterus packed with iodoform gauze. If the endometrium is smooth and bacteriological examination has shown a streptococcic infection no curetting should be done. Frequent feeding with easily assimilated nourishment, alcohol, large hypodermatic injections of strychnine, and cold sponging for fever are advised. The indication for the use of antistreptococcic serum is bacteriological evidence that the infection is due to the streptococcus alone.

At the International Medical Congress in Madrid, J. P. Doléris (*Ann. de Gyn. et d'Obst.*, May) discussed the indications for hysterectomy in cases of puerperal infection. He emphasizes the mortality of 90 to 95 per cent. which follows this treatment and would restrict its employment to those cases of a prolonged and remittent type, which he terms the phlebitic form as opposed to the lymphangitic. In these cases the infected veins themselves furnish an obstacle to the diffusion of bacteria. The operation should be performed before the resisting power of the body has been enfeebled by prolonged illness.

Joachim Cortegera (*same*) says that hysterectomy is indicated in exceptional cases when local treatment fails. The most appropriate cases are those in which the infection is localized in the uterus, appendages and pelvic peritoneum; but neither peritonitis nor general septicemia is a contraindication to its use. Before operating it is necessary to be sure that the infection of the genital tract is not secondary to some other focus and brought through the blood, that the poison does not come from the perineum or vagina, and that the uterus is not an unimportant factor with its lymph nodes intact. The operation is also contraindicated by collapse or absolute loss of systemic resistance.

F. de Cortejarena (*same*) concludes that generalized infection in several organs—veins, kidneys, and even the blood—diminishes the importance of the uterus as a site of infection, and in such cases there is nothing to justify hysterectomy. In cases of long duration one is not authorized in operating since these patients may recover without mutilation and consequent sterility. Bacteriological examination of the blood cannot furnish a basis for deciding upon the probable outcome of operative treatment.

Treatment of Depression of the Skull in the New-Born.— P. Baumm (*Zentralbl. f. Gyn.*, No. 19) suggests the treatment of traumatic depression of the cranial bones during labor by boring into the depressed bone with a small corkscrew and drawing it into place. He has tried this in only four cases. Two children lived: the other two died and the autopsies showed intracranial hemorrhage.

Ferments in Liquor Amnii. —Josef Bondi (*Zentralblatt für Gyn.*, No. 21) carried out investigations upon a number of specimens of liquor amnii in order to determine what ferments are present in that liquid and whether those found there are the agents concerned in maceration of the fetus. He determined the presence of a number of ferments, of which diastase and pepsin were of constant occurrence. These ferments are present in the maternal blood, while in the serum of the new-born they are absent or occur only in traces. For these reasons he considers it evident that they are derived from the maternal blood-serum. These ferments have no influence upon maceration of the fetus. In the post-mortem changes of the internal organs autolytic processes seem to be concerned.

Function of the Corpus Luteum.—In order to determine the function of the corpus luteum, L. Fraenkel (*Arch. f. Gyn.*, Bd. 68, H. 2), carried out a number of animal experiments which are described individually in his paper. In general they consisted in (1) excision of the ovaries, leaving the corpus luteum; (2) total excision of the ovaries, and transplantation of the isolated corpora lutea, allowing them in both these classes of experiments to continue any internal secretory function which they may possess; (3) total extirpation of the ovaries followed by feeding with or injection of an extract of corpora lutea; (4) enucleation of the corpora lutea alone. The results of these experiments led him to believe that the corpus luteum is a gland which is newly constructed every four weeks in women and at definite intervals in animals, and which exercises a definite function, giving at fixed intervals a nutritive impulse to the uterus, which leads to the preparation of its mucosa for the reception of the ovum. If an ovum is fertilized the corpus luteum is retained and exercises its function longer, causing increased nutrition of the uterus in order to accomplish the embedding and development of the ovum. If fertilization does not take place, the corpus luteum causes hyperemia which leads to menstruation. This is due to its internal secretion, not to pressure of the enlarging follicle upon the

nerves of the ovary. The therapeutic action of the corpus luteum was tested by administering the desiccated bodies obtained from the cow. He claims good results from this in women whose ovaries have been removed.

Influence of Sexual Intercourse Upon Women.—E. Toff (*Zent. f. Gyn.*, No. 14) believes that the changes in the physical condition and appearance of women which frequently follows marriage is due to absorption of seminal fluid, which acts like an internal secretion. A weak, anemic girl often becomes robust and full-blooded. A similar action of pregnancy is explained as due to the influence of the male element in the fetus upon the mother.

Hand-Disinfection and Use of Rubber Gloves in Obstetrical Practice.—To the protracted discussion of the subject of asepsis of the hands of the obstetrician, H. Schumacher (*Arch. f. Gyn.*, Bd. 68, H. 2), contributes a bacteriological and clinical study. The hands were disinfected by washing for three minutes with warm water, soap and brush, drying and rubbing with a sterile towel; cleaning under and around the nails; washing again with soap, warm water and a freshly boiled brush for five minutes; rubbing the hands and folds under and around the nails with gauze saturated with sixty-per-cent. alcohol for two minutes; rinsing the hands in warm one-per-cent. lysol solution for three minutes. After this careful disinfection cultures were taken at once without rinsing off the lysol, as, although the latter substance might be carried into the culture and possibly inhibit growth of bacteria present, this is the condition in which the hands are introduced into the genitals in obstetrical practice. Of 193 persons whose hands were disinfected as described, only four were found to be absolutely sterile. Of another group of 105, only one failed to yield a positive culture. In spite of the bacteriological findings the germ-infected hands failed to cause any unfavorable results in the puerperium. As this was the case, Schumacher would advise the use of rubber gloves in conducting obstetrical cases only when the hands have already been soiled by infectious material or when such contamination appears likely to occur.

Determination of Sex.—It has been shown that the older the father is in comparison with the mother, the more does the excess of male infants exceed the average proportion of male births; and that a stallion or bull which has to cover sixty or more females in the year begets a larger proportion of males than one which serves only twenty or thirty. In favor of the view that the sex of the offspring is predetermined in the ovum before fertilization is the identical sex of uniovular twins. B. S. Schultze (*Brit. Gyn. Jour.*, May) thinks these facts are not inconsistent with the theory that the ovum in the ovary has a definite sex if we suppose that the seed of the older man is better adapted to fertilize the male than the female ova of the younger woman, and that spermatozoa

fresh from the testicle of an actively employed stud male are more effective in impregnating male than female ova.

D. José M. Dalmare Pujadas (Fecundacion de Sexo á voluntad, XIV. International Medical Congress, Madrid) believes that the sex of the offspring is determined solely by the time of impregnation. If fecundation occurs five or six days before menstruation the majority of children will be feminine ; if within five or six days after the menstrual flow has ceased, the greater number will be males.

Connection Between the Female Breasts and Genitals.— Ralph Femesváry (*Jour. Obst. and Gyn.*, Br. Emp., June) believes that the stimuli going from the genitals toward the breasts are produced by a certain substance, which is the product of the internal secretion of the ovaries, and that the blood circulation, the quantity of the blood flowing to the breasts being influenced by the nervous system, plays only a secondary rôle. In the reverse direction the stimulus is chiefly produced by the nervous system. He accounts for the changes in the breast in phantom pregnancy by the simultaneous amenorrhea causing an accumulation in the blood of the ovarian secretion in the same manner as that accompanying the amenorrhea of pregnancy.

GYNECOLOGY AND ABDOMINAL SURGERY.

Treatment of Gonorrhea in the Female.—According to R. O. Kevin (*N. Y. Med. Jour.*, June 20) the treatment of acute gonorrhea in the female as in the male consists in rest in bed, symptomatic treatment and no local interference. A powder containing salol, potassium bicarbonate and sodium bromide, given every two hours with much water will lessen the ardor urinæ. When the very acute stage has subsided, inject the urethra, after urination, with a glass syringe, with about half an ounce of 5 to 10 per cent. argyrol. These injections may be used by the patient with the aid of a hand-mirror. If posterior urethritis or cystitis is present, instillations of silver nitrate, 2 to 5 grains to the ounce, or of copper sulphate, may be used, or the bladder irrigated with potassium permanganate or silver nitrate 1 to 2,000. Should infection persist give internally urotropin, sandalwood or copaiba, with endoscopic applications of silver nitrate to the neck of the bladder. Dilatation of the urethra is effective here, also local applications of a preparation of iodoform, ʒiv, balsam of Peru and compound tincture of benzoin, ʒi, on a cotton-wrapped applicator ; silver nitrate, 2 to 10 grains to the ounce, may be used, if preferred, along the urethra. Should the purulent drop from the meatus become chronic the cause will usually be found in the urethral follicles, or Skene's glands. Disease of the urethral follicles is best treated by dilatation, ordinary straight sounds lubricated with Finger's iodine ointment or argyrol, 20 per cent. in lanolin. If Skene's glands are infected they can be felt to roll under the finger along the side of the anterior urethra. A small nasal or urethral speculum or bent hair pin will expose the orifice

of the gland ; in this condition inject the gland with silver nitrate, 20 grains to the ounce, or carbolic acid, employing a blunt pointed hypodermic needle. Vaseline will protect the adjacent tissue. Gonorrhea of the cervix is almost always present with a urethral infection. To make a positive diagnosis, microscopical examination of the cervical secretion is necessary. Preliminary to treatment, clean off the cervical secretion and inject a few drops of 20 per cent. argyrol or 2 to 3 per cent. protargol with a long glass pipette or a syringe with a long nozzle carefully inserted into the os, being careful previously to expel the air. It is well to have daily or alternate daily treatment, until the microscope shows no more pus or gonococci. Small wool tampons saturated with 20 per cent. argyrol may be left against the cervix. If the uterus will permit, a small strip of gauze saturated with the argyrol may be inserted to assist drainage. For irrigating, the following remedies are useful : Carbolic acid, ℥ii ; zinci sulphocarbolate, ℥ss ; glycerin, ℥iii. A teaspoonful of this mixture to a quart of hot water ; lysol, creolin, normal salt solution, or potassium permanganate, 1-2000, or argyrol, 1-500 ; protargol, 1-500. Nitrate of silver, sulphate of copper, 10 to 30 grains to the ounce, applied to the cervical canal, 25 per cent. of argyrol or 5 per cent. of protargol or iodine and carbolic acid, are effective agents. Some time after the acute stage of gonorrhea paint the entire vaginal and mucous membrane of the cervix with nitrate of silver, 10 to 15 grains to the ounce ; also in this stage, to get rid of the catarrhal process, no remedy is more efficacious than a mixture of argyrol 25 per cent., ichthyol 25 per cent., glycerin 50 per cent. ; a tampon saturated with this solution may be inserted and allowed to remain from six to twelve hours, its removal to be followed by a copious hot douche while the patient is in the recumbent posture. If medication has failed, curetting must be resorted to. For infection of Bartholin's glands treatment must be thorough and radical ; after disinfecting the surface the sinus should be freely incised, the diseased glands curetted, and the entire surface involved freely swabbed with 50-per-cent. solution of argyrol twice daily, carbolic acid or nitrate of silver 60 grains to the ounce. The argyrol should be used three or four days successively, then alternately, until cured.

Surgical Treatment of Pruritus Vulvæ.—Barton Cooke Hirst (*Amer. Med.*, May 16) believes greater certainty in results will be obtained in pruritus vulvæ by dividing the nerves supplying the part than by any other method. He reports one case cured by resection of the nerves.

Iodipin in Uterine Fibroids.—John A. Shaw-Mackenzie (*Lancet*, Apr. 4) reports two cases of uterine fibroids treated by hypodermatic injections of iodipin. The size of the tumor was reduced and the hemorrhage and pain relieved. Iodipin is a combination of iodine and sesame oil. The full dose is ten cubic centimeters for ten consecutive days. It causes no disagreeable effects.

Uterine Myomata.—Thomas S. Cullen (*Can. Pract.*, July) finds that the endometrium is usually normal and in most instances we can open the uterine cavity with little or no danger of infection. A subperitoneal myoma frequently becomes attached to a neighboring structure and finally obtains its blood supply entirely from this source, its original pedicle becoming very small. The simple degeneration in myomata is hyaline in character and this hyaline material in turn gradually melts away leaving the spaces filled with serum, which is generally sterile. Subperitoneal and intraligamentous myomata occasionally become infected, probably as the result of some degeneration. The dependent portion of submucous myomata usually undergoes necrosis and sloughing. In adenomyomata we have myomatous tissue, with islands and rivers of normal uterine mucosa scattered through it. These islands of mucosa retain their natural menstrual function and hence at each period pour out their quota of menstrual blood. It thus accumulates and eventually causes cysts filled with changed menstrual fluid. Sarcomatous degeneration of myomata occasionally occurs and it should be borne in mind when outlining the treatment, as should the possibility of coexisting carcinoma of the uterus.

In treating myomata the surgeon's first duty is to remove the growth. The second is to sacrifice the reproductive organs as little as posssible. Prior to opening the abdomen a catheter should be passed into the bladder to determine its confines. If the tubes are the seat of inflammation hysterectomy should be done. When the tubes are normal and there is no offensive vaginal discharge and the nodules are few in number and accessible myomectomy should be performed. It is not advisable to do myomectomy where the nodule is situated in the broad ligament or deep down laterally in the pelvis. It must be remembered that myomectomy is a much more dangerous operation than hysterectomy, and if the patient is weak the complete operation should be chosen. In those cases where it is deemed advisable to do hysterectomy in patients before the menopause it is advisable to leave the ovaries. Where pregnancy occurs in a uterus studded with large and small myomata perform hysterectomy; if the myoma is cervical and would interfere with labor do either hysterectomy at once or Cesarean section later. A submucous myoma, if small and situated high up, with no discharge, is often best removed by splitting the uterus from above. In some cases the myoma can be pulled down and the pedicle ligated from below. Where a sloughing myoma exists it is advisable to give frequent douches of a 1-to 2-per-cent. formaldehyde solution for a few days before operating. After a careful study of many cases, and finding that the operative mortality is as low as, or even lower than, that which follows where patients are not subjected to operation, the writer feels that the only patients that should be advised against operation are those who exhibit no symptoms, or where the myomata are very small, and give rise to little or no trouble.

Retrodisplacements of the Uterus.—The abdominal operations for shortening the round ligaments are the best according to J. M. Baldy (*N. Y. Med. Jour. and Phil. Med. Jour.*, July 25). They open the way to a thorough inspection of the parts and to an intelligent application of the proper treatment to any complication existing. They do not weaken any of the already weak canals of the body. There is no chance of failure of the operation. They cause no unnatural attachment and no adhesions which can possibly give subsequent trouble. They do not draw the uterus up into the abdomen, but leave it a pelvic organ. They bring the womb into a perfect anterior position, hold it there accurately and with certainty, and at the same time leave it fully movable. Retrodisplacements of the uterus are mostly coincident with other lesions and where such is the case the symptoms almost universally come from the associated disease.

Conservative Surgery of Diseases of the Appendages.—Discussing his own statistics and those of other writers, Hector Treub (*Ann. de Gyn. et d'Obst.*, May) places the mortality of radical operations for salpingo-oophoritis at not less than five or six per cent. He says that such operations are subject to a greater or less chance of not giving complete relief to the patient, and are certain to be followed by disagreeable after-effects which may be as troublesome as the original difficulty. Conservative operations for the same conditions present a mortality of not more than two per cent., some chance of failing to relieve the patient entirely, a possibility of proving insufficient and requiring a second operation, either conservative or radical, and the certainty of not adding a new disease in the form of a premature menopause to the existing troubles. For these reasons he considers so-called medical treatment to be sufficient in at least half the cases. If this is ineffectual the next step should never be a radical procedure, but always posterior colpotomy. If this reveals a tuberculous affection hysterectomy should be performed as soon as possible. In cases of hydrosalpinx resisting repeated colpotomy and requiring other intervention, and in cases in which one wishes to try to relieve sterility, conservative abdominal operations (resection, salpingotomy, salpingo-ovarosyndesis) are indicated. Salpingorrhaphy must be reserved as an accessory operation during the course of a laparatomy for any other indication.

Vaginal Total Extirpation Under Morphine.—Among three cases operated upon by R. Gradenwitz (*Monatschr. f. Geb. u. Gyn.*, Bd. xvii, 45) after simple hypodermatic injection of morphine, was a total vaginal hysterectomy with anterior colporrhaphy and colpoperineoplasty. The only painful step was ligation of the lower part of the broad ligament and of the tubes. Schleich's local anesthesia was, however, employed in the perineoplasty.

Cystoscopic Examinations.—The advantages of the Sims posture in making cystopic examinations are according to J. A. Sampson (*J. H. H. Bul.*, July) as follows: It is an easy posture for the patient and can be maintained for a long time. The posi-

tion is a passive one. It is the least obnoxious position the patient could assume. There is little exposure. The posture by tilting the pelvis and at the same time elevating it slightly permits of enough distention of the bladder for a satisfactory examination. If a general anesthetic is required it is easily given in this posture. The exposure of the urethral orifices is in most cases not as good as that in the knee-breast posture.

Treatment of Diffuse Peritonitis.—Joseph A. Blake (*Ann. of Surg.,* August), in treating this condition carries out two principles: Firstly, the removal or segregation as quickly as possible of the cause or nidus in order to prevent further peritoneal and systemic infection; secondly, the placing the peritoneum under the best possible conditions to withstand and eliminate the generalized infection. He advises early operation with lavage of the peritoneum with large quantities of decinormal salt solution. This may be partially removed with gauze or sponges, or considerable quantities of the fluid may be left in the cavity. The wound should be closed without drainage unless the latter is absolutely indicated by the presence of non-absorbable amounts of necrotic material.

Mental Aberration Consequent Upon Pelvic Disease.—L. G. Hanley (*N. Y. Med. Jour.*) reports ten cases of mental aberration cured by operations upon the pelvic organs. Six of the cases had dysmenorrhea, four had diseased ovaries. In three cases endometritis was present. He believes that no woman should be committed to an insane asylum without first receiving a thorough examination of her pelvic organs and having treated any trouble found.

Tuberculosis of the Breast.—Marmaduke Shield (*Clin Jour.,* May 13) cites a case of tuberculosis of the breast in a woman aged 73. There were no evidences of pulmonary tuberculosis. The growth was removed and found upon microscopic examination to show typical tuberculous granulation tissue.

DISEASES OF CHILDREN.

Ateleiosis: A Form of Dwarfism.—Hastings Gilford (*Practitioner,* June, 1903) says that the term ateleiosis has been applied to a peculiar disorder of development, of which there are two varieties, in one of which there is infantilism up to puberty, and after that period dwarfism only. In the second variety (the one under consideration) there is as a rule both dwarfism and infantilism throughout the whole of life. The author goes into the history of the subject and describes many cases. The salient features of the condition and those which distinguish it from other diseases are as follows: It has a somewhat abrupt onset, and as a rule appears without evident cause. When it begins during infancy or early childhood a characteristic physiognomy results. The face is broad and flat, the nose retroussé, while the relative size and conformation of the head are childish. The intelligence is

unaffected unless the disease begins during early fetal life, when the delayed development of the very immature brain may give rise to imbecility. The delay of development is very pronounced, but less conspicuous in the bones than in height, proportion and facial appeaance. The muscular strength is in correspondence with the height. The general health is unaffected. Dentition is often greatly retarded. Probably the sexual system is more affected than any other, for in nearly every case it is described as infantile or childish, even when the skeletal development has arrived at the period of youth. There is no evidence that the thyroid gland, the pituitary body, the pancreas, brain, heart or any other organ is the seat of origin of ateleiosis. The defective condition of the sexual organs might be suspected of being the cause of the infantilism or feminism of ateleiosis. But we know that while, on the one hand, removal of the sexual organs in childhood does not lead to ateleiosis, on the other, ateleiosis may exist with sexual maturity. Hyperplasia of the skeleton might account for the general hyperplasia, but the fact that the development of the skeleton is often in advance of that of all the other parts seem to negative this view. As yet we do not know to what this abnormal delay of development is due.

The Baby's Cold.—Park L. Myers (*Am. Med. Compend.*, August, 1903) holds that the cause of temperature disturbance or a "cold" is most often a matter of overheating the infant. In a modern home, where summer temperature reigns the year round, winter flannels, or equally warm cottons or silks are kept on night and day. What can we do to provide for quick readjustment? Favor the spontaneity, the elasticity of the autothermic functions. It is remarkable what degrees of temperature the surface of the newborn babe can withstand under favorable surroundings. Who has not seen a baby given its first bath in a room of 50° temperature, with water at 40°, rubbed red with a coarse crash towel, dressed in rough seconds, and yet grow and wax strong without sign of infant coryza? How often we use water alternately at 50° and 150° to resuscitate the newborn without an after cold. Clearly it is not the temporary heat or cold that makes abnormal products. And the nearer to nature the body, the longer period of exposure to unusual temperatures can it stand without abnormal products. The cool water or air bath, the friction with bare hand or cloth, the molecular rub of alcohol, all act to the thermostatic functions, like gymnastics to the muscles. Probably the wetting of the baby's skin, with the hand, with cold water, with body bared to the air of the common room temperature, night and morning, rubbed dry with the naked hand—probably this routine alone would prevent enough respiratory trouble to seriously cripple many doctors' incomes. And now, given a cold, what may be done to prevent the growth of bacteria and the resultant specific inflammations? Never neglect nature's alarm: the sneeze. Put the baby through a thermostatic gymnastic immediately. The skin with its dense layer of horny epithelia and acid excretion is not so liable to in-

vasion as the delicate nasal mucous membrane. Hence we can most safely direct our efforts at elimination of the overheated products, through skin channels. Answer a sneeze with the rubbing of the head or body, or both, with the dry hand. If symptoms continue, give an alcohol rub. Pure, sweet, bactericidal alcohol can fetch a blush of blood to the skin, and thereby increase its output in a marvelous manner. If the disturbance continues—if the alterations have been too long in existence—if congestion of mucous membrane, and exudation is already apparent then should we resort to therapeutics proper. Give that remedy which more than any other reverses the action of the thermostatic apparatus, viz.: opium. Opium lessens respiratory mucous membrane congestion, and stimulates circulation and transudation in the general integument. Add to this a general and local antiseptic, and the indications are filled. The author holds that an antiseptic calomel is inferior to phenacetin and acetanilid, especially in cases without dyscrasias. Phenacetin does not alter normal secretions, it is tasteless and unirritating, and it is a most efficient synergist of the thermostatic apparatus in bringing about a peripheral stimulation, a skin elimination. Again its solution is a local antiseptic of splendid power. Putting these ideas together in a prescription we have: R Paregoric, 3ii; acetanilid, 3ss; alcohol, 3ii; syrup tolu, q. s. ad 3ii. Give from 10 drops to 1 teaspoonful every half hour until skin is moist and ease obtained.

Croupous and Catarrhal Pneumonia in Infants.—S. Vere Pearson (*The Practitioner*, April, 1903) says that not only are these different diseases, but in the great majority of cases they can readily be distinguished the one from the other. Occasionally, however, it is not only very difficult, but impossible to differentiate between them. The most important differences are the following: *Croupous pneumonia* in the infant differs in few essential features from the same disease in an adult. It is characterized by its sudden onset, its continued high temperature and hurried respiration, its critical ending and its rapid resolution. The consolidation of the lung is lobar; it is the result of fibrinous exudation. The physical signs of the pneumonia develop rapidly, and are well-defined. Expectoration and rigors are practically never seen in infancy, but vomiting at the onset is common. Herpes is less frequent than in adults, and cough is seldom distressing; also it is noticeable that labored breathing, inspiratory dyspnea, and cyanosis are usually absent, or, if present, seldom prominent. A hot skin and some prostration are generally observed. The prostration is great early in the disease, and afterwards, as a rule, steadily diminishes. Convalescence is rapid, and the prognosis is good. Empyema and otitis media are common complications. *Broncho-pneumonia*, although including several distinct varieties, usually presents well-marked features, which make up quite a different clinical picture from that occurring with croupous pneumonia. The onset is more gradual; the disease is often secondary to bronchitis, or one of the exanthems. The

temperature undergoes marked remissions; the course is prolonged, resolution is slower, and the disease ends by lysis. The consolidations of the lung are lobular, and are produced by a cellular exudate; and the signs to which they give rise are generally mingled with signs of bronchitis. Signs of consolidation are slower to develop, and are often ill defined. Cough is more constant and distressing than in croupous pneumonia. Cyanosis is common; and real dyspnea, often with some recession of all the soft parts of the chest, is noticeable. Prostration is greater than in croupous pneumonia, and steadily increases. Convalescence generally proceeds gradually, and the prognosis is bad. Empyema is a rarer complication, and when it occurs it is usually smaller than that which arises as a complication of croupous pneumonia. Other important points of difference between the two forms are: —Broncho-pneumonia is more frequent in delicate, rickety, or debilitated children, whereas croupous pneumonia very often attacks those previously healthy. In broncho-pneumonia the bacteria associated with the disease are various, although the pneumococcus is much the commonest; but in croupous pneumonia the pneumococcus is practically always the cause of the disease. Relapses in broncho-pneumonia are not infrequent, which is not the case with croupous pneumonia. The author goes into detail in describing the difference between the two affections. In addition, he says, that the prognosis is very different. Croupous pneumonia in itself is not any more serious in infants than it is at any other period of life. In the author's opinion it is less serious. Complications are rather commoner than in adults, otherwise the prognosis would be very good indeed. The majority of infants with croupous pneumonia recover. Holt estimates the death rate at 4 per cent., Henoch records 7 deaths out of 64 cases, or 11 per cent. From these and other statistics the author estimates it to be about 12 per cent., which is below the death rate from this disease at all ages, estimated by Taylor at 17 per cent. In broncho-pneumonia we have to deal with a very different state of affairs. Holt gives the average mortality of the broncho-pneumonia in patients under three years of age as 55½ per cent. Practically all these cases die from the disease itself, and not as the result of any supervening complications. This mortality varies somewhat with the age of the patient, and with the nature of the broncho-pneumonia in respect to its origin. The younger the patient, the worse the prognosis. Broncho-pneumonia, secondary to diptheria, acute ileo-colitis, or scarlet fever, is practically always fatal: that secondary to whooping cough is more fatal than that secondary to measles. The primary broncho-pneumonias are the least serious.

Diabetes Mellitus in Childhood, Two Cases of.—Seelkeim-Brünnen (*Der Kinder-Arzt*, Vol. 14, No. 4), observed the case of a fourteen-year-old boy and that of a boy of three years. The elder gave symptoms of diabetes during eight months before his death, the urine containing five per

cent. of sugar. No change in diet could reduce the amount. Emaciation was progressive and the peculiarly melancholy expression on the lad's face was very striking. Both he and the younger child had a neurasthenic family history, though neither diabetes nor any organic disease was present in either family. The little boy died eight weeks after the onset of his diabetes, having passed from four to five per cent. of sugar in his urine. Increase of appetite was not present in these cases. The changed facial expression was observed in both.

The author would not withdraw all carbohydrates from these patients. Such a proceeding is not only useless, but may prove harmful; because, as the amount of secreted sugar may remain the same in spite of the diet, it follows that then the sugar must be taken from the body proteids instead of from the ingested food. A good plan is simply to reduce the amount of bread to a minimum, and allow a diet of meat, potatoes and vegetables, with wine which is not rich in sugar.

Diphtheria Serum; Its Action and Its Limitations in Operative Laryngeal Stenosis.—E. Wieland (*Jahrbuch f. Kinderbk.*, Vol. 57, No. 5), made a critical study of the material at the children's clinic in Basel. He concludes that both clinical and anatomical experience teaches that the serum treatment of diphtheria is effective, especially in severe laryngeal cases necessitating operation. The action of the serum is a local one, as is evidenced by the rapid disappearance of the pseudo-membrane as well as by the limitation of its spreading after the injection of antitoxine. The effects of the serum are most marked in slow, mildly toxic cases, and least so in the rapid, severely toxic ones. Only very early, possibly right after infection has occurred, can the serum do any positive good in toxic cases. The prognosis in any given case depends less upon the early date of the antitoxine administration than upon the degree of general infection which has taken place.

The diphtheria antitoxic serum is an extremely valuable curative remedy, but by no means absolutely so in every case. On the other hand it seems to be a perfectly reliable prophylactic remedy, at least for the short period of three weeks. Therefore the immunization of all persons exposed to diphtheria is indicated, as a means of preventing the bad results of later serum treatment.

The Etiology of Endocarditis in Childhood.—Sanford Blum (*Arch. of Ped.*, May, 1903) says that while fetal endocarditis may be a primary cause of congenital defects, these, once established, are certainly a condition predisposing to attacks of endocarditis in childhood. Acute endocarditis may originate in infancy, but this is rare. After the fifth year of age, endocarditis is not uncommon and in later childhood it is of frequent occurrence. *Rheumatism* is the disease associated with the greatest number of cases. The severity of the general rheumatic manifestations does not afford an index to the liability of cardiac im-

plication. In fact, trivial articular disturbances are often attended by decided pathological changes in the endocardium. Endocarditis is not to be regarded as a result, but as a manifestation of rheumatism, and is probably caused, in these cases, by a microorganism—as yet unidentified—which having a predilection for serous surfaces, attacks the endocardium just as it does the synovial membranes of the joints. *Chorea* is a not infrequent concomitant of endocarditis. *Scarlet fever, measles, diphtheria*— all the acute infectious diseases—may be the starting point for endocarditis. Here two factors operate; first, the disease by its increased demands upon the heart as well as by the vitiating action of the fever and the presence in the circulation of noxious substances impairs the resistant powers of the heart; and secondly, the weakened endocardium may then be successfully attacked by the specific bacilli of the special disease or by other agencies opportunely chancing to be present. *Malignant endocarditis* is exceptional in infancy. In a previous paper the author reached certain conclusions as to the various causes of endocarditis which he repeats and classifies as follows: 1. Congenital and infantile endocarditis (defective development, simple reparative endocarditis—and unknown causes.) 2. Endocarditis due to known bacterial agencies (streptococcus, staphylococcus, tubercle bacillus, pyocyaneus bacillus, etc.) 3. Endocarditis associated with definite diseases presumably of a bacterial nature; but of which the bacterial agents are still unknown (rheumatism, chorea, syphilis, the exanthemata, etc.), (4) Endocarditis due to mechanical or chemical insults (blows, strains, excretory products, alcohol, atheroma, etc.)

While examples of all of these classes may occur in infancy and childhood, the relative frequency of their occurrence presents decided variations from that existing in adults, and the different conditions prevailing likewise exert a decided influence.

In childhood the endocardium, as all of the tissues, has less power of resistance than in adult life and accordingly succumbs to attack more readily. Again, congenital defects sometimes exist which at once furnish a weak spot vulnerable to intercurrent factors. Children are the chief sufferers from the exanthemata and endocarditis secondary to this group of diseases is practically exclusively limited in its inception to the epoch of childhood. About puberty great demands are made upon the heart, and here again the endocardium may be affected. There is in infancy a not insignificant number of cases of congenital endocarditis of a severe grade which never attain adult life. In fact of the severe cases of congenital endocarditis, others than those implicating the pulmonic orifice rarely exceed the age of twelve. The predisposition to occurrence in certain conditions—for example, with rheumatism—is vastly greater in childhood than in adult life. Malignant endocarditis is exceptional in infancy and rare in later childhood; when it does occur it is most frequently associated with rheumatism. From the atheromatous ravages of ad-

vanced age alone the child completely escapes. But the effect which depraved systemic conditions in the mother—alcoholism, metallic poisoning of the blood, etc.—may exert on the endocardial structures of the fetus can at present only be conjectured That bacterial endocarditis may occur in the embyro there seems to the author no reason to deny.

"Eye-Strain" in Youth, and Its Modern Treatment.— Ambrose L. Ranney (*Medical Record,* April 18, 1903) thus summarizes the results of his investigations : 1. Eye-strain cannot be recognized too early in youth. 2. Its scientific investigation by modern methods and its radical correction may favorably modify both physical and mental development. 3. The neglect of an existing eye-strain may in time allow it to exhaust the reserve nerve capital of the sufferer and produce untold ills both of body and mind. 4. No child should ever be allowed to begin education until it is known that its eyes are properly fitted for the work. 5. Legislative enactment should, and surely will in time, compel an eye examination of every child before it enters the public schools. 6. Teachers should also be instructed in the rudimentary steps of vision testing. 7. Tests for mal-adjustment of eye-muscles should be made upon every child as thoroughly and intelligently as tests for errors of refraction are made prior to its education. 8. A knowledge of the possible effects of eye-strain upon mental and physical development cannot be too widely disseminated among parents and teachers. 9. The direct causal relationship between "eye-strain" and nervous diseases is too well established to-day to require further proof, or even to justify further discussion. 10. The modern methods of testing for anomalies of adjustment of eye-muscles are the only ones that can furnish us with scientific and accurate information. The time has happily passed when any oculist can instruct a patient to simply follow some object held before the eyes with the eyes ; and then on that test alone give a final decision as to whether mal-adjustment of the eye-muscles exists or does not exist. Two decades ago this was about all that anybody knew about eye-muscles. To-day, the mere tyro would not dare commit himself on such tests. 11. The cure of disease to-day is intelligently based on *the search for its cause* rather than on an indiscriminate use of drugs ; and the prevention of diseases is rapidly becoming more important to the medical mind, and also to the laity, than its cure. 12. The detection of "eye-strain" in youth is an important step in preventive medicine, and the arrest of a nervous leak may save many a child from a permanent breakdown when an adult. 13. The study of facial expression and head posture is destined to become an important aid in diagnosis. 14. The governing boards of institutions for the feeble-minded, the epileptic, and the insane will sooner or later be compelled to investigate more carefully and earnestly than in the past the eye conditions of their inmates.

Eye-Strain.—George H. Thomas(*Northwestern Lancet,* June 1, 1903) points out the many remote effects of eye-strain, the list

including neurasthenia, hysteria, melancholia, hypochondriasis, nervous dyspepsia, vertigo, insomnia, migraine, epilepsy, chorea, hay-fever, wry neck, car sickness and sea-sickness, with less definite symptoms of anorexia, faintness, nervous irritability, weariness, mental confusion, stammering and even chronic constipation, nocturnal enuresis and dysmenorrhea. In regard to prophylaxis, the author says that one of the not least important steps is that made in the examination of school children's eyes. Many a child backward in its lessons, and whose studies are fatiguing and even loathsome, may find its course easier and pleasanter when the eye-strain is removed. Do not wait for headaches and eye symptoms in such a child, to appear, for you will seldom find them. The child who has headaches and eye symptoms is generally the one who finds study otherwise a pleasure. Glasses, when needed, and when put on early enough, will help in a large measure towards the mental and physical well being of adult life.

Infantile Paralysis.—M. Glorieux (*La Policlinique,* May 15, 1903) says that this affection is to be recognized by its abrupt onset in children from two to five years of age, by the flaccidity of the paralysis, the abnormal mobility of the articular segments attacked, the modification of the faradic contractility of the affected muscles, the existence of certain trophic disturbances, such as cyanosis, redness, a mottled skin, coldness in the affected limb, which cannot be lessened, the integrity of tactile and thermic sensitiveness even in the diseased parts, and finally, the integrity of tendon and cutaneous reflexes on normal parts. As to prognosis, no definite statement can be made until the disease has lasted two or three months. Sudden recoveries sometimes occur during the first weeks, but after three months' duration it is much to be feared that the trouble will remain stationary during the whole of the patient's life. As to treatment the paralyzed and atrophied muscles should be subjected to electricity by the *continuous current.* Exercises of muscle training and massage are of real service. Orthopedic appliances are valueless especially at the onset, because they immobilize the paralyzed limb and oppose its voluntary movements. Specially devised boots with a sole thicker on one side than on the other, or otherwise arranged to correct the defective attitude of the paralyzed foot may be used providing they do not interfere with the nutrition or the movements of the limb.

Management of Crossed Eyes in Children.—Willis O. Nance (*Medicine,* July, 1903) says that the ideal treatment of strabismus in children includes the establishment of binocular vision. This result can usually be obtained by early treatment, and in a large proportion of cases only by persistent and painstaking efforts on the part of the physician and parents. Delay in treatment after the squint is first observed renders less probable a perfect cosmetic result, and precludes the likelihood of normal vision. The use of atropine is indicated early; glasses in most of the cases as soon

as patient is old enough to wear them. The monocular occlusion pad and various orthoptic exercises are valuable adjuncts to successful management. Spectacles should be employed only after a thorough skiascopic and ophthalmoscopic examination by a competent ophthalmologist. All astigmatism as well as hyperopia or myopia must be fully corrected and the correction ordered for constant use. Operative interference is justifiable, and indicated without delay, after other measures are proven of no further purpose, or in certain instances where the deviation is so extreme as to render valueless any attempt to employ the usual orthoptic exercises.

Mouth Deformity in Early Childhood.—Henry R. Hatherley (*New Zealand Med. Jour.*, May 31, 1903) protests against thumb sucking, and against the use of the india-rubber nipple or "dummy." If it is admitted that some soft materials are capable of making lasting impressions on harder ones by long-continued pressure, he asks, What is the probable result of continually biting and sucking an india-rubber nipple, the modern substitute for the thumb? In his opinion it has certainly a tendency to accentuate any deformity of the mouth, the teeth, or the jaw-bones, whether of a trifling or serious character. Should the teeth be inclined to protrude, the long hours of dummy-sucking and biting, with the rubber tightly pressed against the gums or incisors, which in turn press on the upper and lower maxillary bones, causes the teeth to still further protrude, and a mouth which might have been a pretty one is marred by unsightly buck-teeth, or else the teeth are separated from each other, particularly the central upper incisors. If, on the other hand, instead of eversion there is inversion of the incisors, the pressure of the rubber will incline them still further backwards. Again, the continual action of sucking promotes the secretion of an excessive amount of saliva; the secreting glands get no rest, they become hypertrophied and prone to congestion. The physiological function of the salivary glands is primarily to assist digestion, and secondarily to lubricate the mucous membrane; it is during feeding-time only that its secretion should be abundant. What would happen if, reasoning from analogy, other secreting glands were allowed no physiological rest? We should anticipate sooner or later some constitutional disturbance, functional perversion, and finally structural alteration. The stomach which is continually excited by the presence of food secretes an undue amount of gastric fluid, and dyspepsia would supervene, if nothing worse. How far the continual action of the saliva, diverted from its legitimate duty, may lead to premature decay of the deciduary teeth is a question worthy of investigation: it may at least be a contributing factor to dental troubles in early childhood. It is a matter of common experience that the teeth of the rising generation show an increasing tendency to decay early. The muscles employed in the action of sucking, chiefly the buccinators and orbicularis oris, are, like the glands, permanently on duty, and show a like inclination to develop faster

than neighboring muscles which have a comparatively easy time. The essence of beauty is perfect symmetry and harmonious proportion; the absence of symmetry in the development of muscular tissue is, according to its degree, either a slight or serious deformity. The abuse of the "dummy" is often responsible for the full, long, slightly protruding upper lip and the flat flabby cheeks, which impart a heavy expression to a child. If there were no other drawback, the habit of dummy-sucking is essentially a dirty one. India-rubber is not the easiest substance to sterilize, and, as far as my experience extends, it never is properly, even if attempted to be, rendered aseptic. It is usually hung round a child's neck by a bit of ribbon, so that it may always be ready for use. It comes in contact with dirty bibs and pinafores, perhaps with sores, abrasions, or skin diseases. After a time it is saturated with mucus and saliva, and becomes offensive. Thrush, cancrum oris, and other diseases, the causation of which is often obscure, are not unlikely to be fostered by dummy-sucking. It cannot be denied that the rubber nipple is often a great comfort to a child, but it is an artificial luxury; children who are taught to do without it sleep quite as well as those who render night time unbearable if deprived of the unhealthy comfort. There is no objection to a hard ivory or bone ring, especially during the period of dentition. A hard substance will be bitten gently, but a soft one will be gripped with all the muscular power available. The author does not think that biting a hard substance will ever deform the mouth, but he is satisfied that biting a soft one has done so frequently, especially when the soft substance is gripped unconsciously during sleep.

The Pathology of Sydenham's Chorea.—A. B. Gianasso (*La Riforma Medica*, April 22, 1903) states that in a certain children's hospital he had the opportunity of studying 46 cases of chorea minor, and came to the conclusion that of all the theories held in regard to its causation, the infective theory is the only satisfactory one. The subjects are hereditary neurotics, to a certain extent degenerates in whom an accidental cause will develop chorea or some other neurosis—such cause being an acute or chronic infective disorder, rheumatism, violent emotion, a nervous disease or reflex phenomena (as in Breintung's case of chorea following the introduction of a foreign body in the external auditory meatus, and disappearing after its extraction.) Grave cases of chorea with cardiopathy, fever, and arthropathy are due to a morbid association of diseases. This would explain the fact of the varied forms of bacteria found in the blood of sufferers from chorea—which are therefore purely accidental, due to a secondary infection developed on a choreic ground.

Peritonitis Tuberculosa Traumatica, with Ibus.—Lücke (*Berl. klin. Wochens.*, Vol. 40, No. 18), reports the case of a twelve-year-old boy, of good family history, who fell on his back while skating, a companion falling on his abdomen. Pain and vomiting began at once. Tympanites, con-

stipation and biliary vomiting were present. Operation was performed on the fifteenth day, when a diffuse tuberculous peritonitis was found, together with old adhesions remaining from some previous attack of peritonitis. The descending colon was collapsed, the upper part of the intestine greatly dilated. No point of invagination was found. The boy died two hours later. At the autopsy the oldest tuberculous lesion in the body was proven to be in the mediastinal lymph nodes, the mesenterics being cheesy also. Undoubtedly the traumatism caused infection of the peritoneum from the mesenteric lymph nodes.

Edema of the Glottis.—John H. Jopson (*N. Y. Med. Jour. and Phila. Med. Jour.*, July 25, 1903) reports a case in a child of five years, reviews the literature of the subject and draws the following conclusions : (1) Simple edema of the larynx usually occurs in cachectic diseases, especially of the heart and kidneys. In these there may be no apparent exciting cause, and the inflammatory symptoms are conspicuous by their absence. (2) Inflammatory edema of the larynx results from contiguity to other inflamed structures ; as a local complication of the acute infections of erysipelas, variola, measles, scarlatina, influenza, etc. ; or as a result of severe grades of inflammation in simple acute laryngitis. Bacteriological investigation will probably find that a streptococcus is the most frequent exciting cause. (3) Traumatism to the laryngeal structures may result in edema, depending on the degree of "insult" to the tissues or to a possible predisposition. (4) Among rare causes of edema of the larynx are angeioneurotic disorders and the blood dyscrasiæ, such as scurvy, purpura, etc. (5) The diagnosis rests on the evidence of palpation and, if possible, visual examination, as well as on the signs of laryngeal obstruction. Membranous laryngitis cannot always be at once excluded. (6) Prognosis is unfavorable in all cases occurring in the course of chronic cachectic diseases and in severe types of the acute infectious diseases. In no case can it be other than guardedly favorable. (7) Treatment by intubation rarely affords relief unless the obstruction is infraglottic. Tracheotomy is absolutely demanded in extreme cases. The continuous inhalation of medicated steam is always to be employed ; scarification and external depletion by leeches may be tried ; cold and heat should be used externally and internally—cold as a prophylactic and heat as a stimulant and absorbent. General stimulating and supportive measures are necessary in all cases. With the occurrence of edema of the larynx the time of election for the use of antistreptococcic serum has probably passed. As the infection is usually a mixed one, serum therapy does not at the present time offer much prospect of relief ; and its use must be empirical unless there is opportunity for bacteriological diagnosis from cover glass preparations.

Prolonged Intubation Tubes.—Burt Russell Shurly (*Jour. Am. Med. Ass.*, July 11, 1903) defines prolonged intubation as a term applied to conditions necessitating the use of intubation tubes for a longer period than six days, while "re-

tained tubes" is an expression usually meant to include the prolonged period with a more extensive or indefinite course of time. The observations and deductions which the author has to make in this paper are gathered from a personal experience of 300 intubations, in addition to the use of antitoxin; 230 of these were reported before the Michigan State Medical Society two years ago. The first 100 intubations gave a mortality of 31, the second 100 showed 20 deaths and the third 100, 18 deaths, being a total of 300 intubations (with the use of antitoxin) and 69 deaths. With two exceptions these operations were performed in private practice and for the most part among the ignorant, superstitious, foreign element of our city, whose children are given but little attention in sickness or in health. Two hundred and thirty-one of these intubated children have recovered. Of this number 8 have required "prolonged intubation" and in addition two cases from other operators have been referred to him for treatment. In conclusion he says: "Cases requiring a tube more than six days should be classified as prolonged. Rubber tubes only should be used. Liberal doses of antitoxin are required in cases due to reinfection or persistence of the membrane. Large doses of strychnine are of value. Smaller or modified tubes coated with alum ointment or alum gelatin should be introduced at each re-intubation. The string may be left in place with advantage in many cases. When these measures fail, the 'granulation tube' may be used. Tracheotomy is never indicated."

The Relation of Chronic Enlargement of the Spleen to Anemia in Infancy.—John Lovett Morse (*Boston Med. and Surg. Jour.,* May 28, 1903) gives notes with complete examinations of the blood, of twenty-two cases of chronic enlargement of the spleen in infancy, and a number of others without examinations of the blood. He considers the relation of the enlargement of the liver to that of the spleen, the relation of enlargement of the lymph nodes to that of the spleen and liver, of the number of red corpuscles and the amount of hemoglobin to the size of the spleen, of the number of white corpuscles to the size of the spleen; also the relation of the number of white corpuscles to the size of the liver and to the size of the lymph nodes, the relation of the numbers of red and white corpuscles to each other, and the relation of the morphological changes in the red corpuscles to the other signs. He also gives the etiology and prognosis. His conclusions are that when anemia, splenic tumor and enlargement of the liver or lymph nodes are found in association in infancy, they are in no way dependent on each other, but are all manifestations of a common cause—disturbance of nutrition; that there is nothing characteristic about the blood changes found in association with enlargement of the spleen, as similar changes are found when there is no enlargement of the spleen; that the anemia is secondary rather than primary; that there is no justification for placing the cases of anemia in infancy associated with enlargement of the spleen or liver in a class by themselves, and calling it "anemia

infantum pseudo-leukemica," or "splenic anemia of infancy;" that these terms should be dropped from our nomenclature.

Rheumatic Chorea and Its Anti-Rheumatic Therapy.— Krobak (*Archiv f. Kinderbk.*, Vol. 26, Nos. 1 and 2) used aspirin in the treatment of eleven of seventeen cases of chorea which gave a marked rheumatic history or which were accompanied by rheumatic symptoms. In nine of these the remedy worked well. Five of the remaining cases were treated with arsenic, and in only one was the result good. Consequently aspirin is preferable to arsenic in the treatment of rheumatic chorea. Aspirin lessens the rheumatic pains as well as the choreic movements, but it does not prevent the development of cardiac lesions.

In seven cases in which no history of rheumatism appeared arsenic was distinctly valuable in five.

Therapeutic Suggestions in Diphtheria.—Louis Fischer (*Med. News*, July 18, 1903) says that the specific treatment of a case infected with diphtheria consists in the first place in giving it the required dose of antitoxin. The dose depends on the severity of the infection. The usual amount required for a very mild case, in a child from one to five years old, is 1,500 units. A child five to ten years of age should be given at least 2,000 units at its first injection. When we are dealing with a very severe toxemia with marked general depression and large pseudo-membranes of the throat, then at least 3,000 units of antitoxin should be injected in the beginning. When the cervical lymph glands are enlarged and there is slight or severe evidence of stenosis, then at least 3,000 units should be injected in the beginning. If twenty-four hours after the first injection there is no visible effect on the pseudo-membranes, if the child is not brighter, if the appetite is poor and if the heart's action is very poor, then by all means inject a second dose of antitoxin. The necessity for the third injection depends upon the pulse, temperature and condition of the glands of the neck, also upon the macroscopic condition of the throat. In case of laryngeal stenosis it is always a safe plan to give a large injection of 3,000 units, and if the stenosis does not disappear in twelve hours then an additional injection of 1,500 units, so that in all 4,500 units can be injected during the first twenty-four hours. The presence of the streptococcus in addition to the Klebs-Loeffler infection is a contributing factor to a fatal termination ; antitoxin is inert as regards the streptococcus. We frequently have broncho-pneumonia, nephritis, arthritis, otitis and local abscesses due to the invasion of the streptococcus. In such cases we need in addition to the Krebs-Loeffler antitoxin a streptococcus antitoxin. Too much reliance must not be placed on the specific nature of antitoxin alone. The next indication is for restorative treatment. As a tissue and blood builder no medication equals food. Milk diluted with some cereal decoction will be better borne than milk alone. If the child is old enough a raw egg can be added to the milk. Concentrated broths may alternate with the milk feedings.

Acid fruits are well borne. Older children can be given raw scraped steak, calf's foot jelly and ice-cream, which is nutritious and pleasant. When it is difficult to feed by the mouth inject rectally 1 ounce of predigested milk, 1 ounce starch water, 1 minim of laudanum, slowly, through a colon tube, after both colon and rectum have been cleansed by a soapsuds enema. If this is well retained it can be repeated once every four hours, and a yolk of raw egg may be added to the mixture. To secure proper assimilation of the food the bowels must be attended to and cleansed by a laxative. The putrid membranes and catarrhal discharge from nose and throat should be removed by cleansing the nose with a salt solution of the strength of one drachm of table salt to one pint of water. Fresh air must be admitted to the room at all times, and visitors excluded. Oxygen is indicated when there is any sign of cyanosis. For the fever antipyretic drugs should be excluded, and the patient sprayed with evaporating lotions such as alcohol and water, or acetic ether locally. Cold packs and flushing the bowel with cold water are very serviceable in some cases. An otitis media may keep up a fever. Stimulation should begin early. Strychnine, gr. $1/_{100}$, for a child one year old, repeated three or four times a day. This can be gradually increased. Strychnine and whiskey can be combined. Tokay, champagne and coffee are good stimulants.

The Treatment of Ring-Worm.—George Thomas Jackson (*Med. Record*, April 11, 1903) has found that if a drachm or more of the crystals of iodine be added to goose grease, it will make a most effective remedy for ring-worm. It is to be applied twice a day until it produces reaction as shown by a little swelling of the patch. Then once a day will be sufficient. In two or three weeks the hair falls out of the patch, and it becomes bald like a patch of alopecia areata. After a time the hair grows again and the patch is well. The first applications are apt to be a little painful for a few moments, but after that, even little children do not complain of pain. No epilation is necessary. One must be sure to obtain genuine goose grease; the finest variety is expensive, as it is made from the fat of uncooked geese. Occasionally an obstinate case will be met with that will not yield to this treatment. In such cases the author has had good results from the use of an ointment composed of from half a drachm to a drachm of croton oil to the ounce of sulphur ointment. After a few days it will cause a good deal of dermatitis and convert the patch into a perfectly bald one. Eventually the hair grows in again and the disease is cured.

Toleration of a Child's Stomach for a Foreign Body.—A. Bruch (*Bull. Méd.*, June 10) was called on the 19th of February to see a child of eight months which had swallowed a metallic key of a toy automobile. The child was sleeping peacefully three hours after the accident and had shown no signs of discomfort. A careful examination of the pharynx, and a gentle exploration of the esophagus failed to reveal any obstruction. The patient

had no respiratory trouble, the general condition was good, and deglutition perfect. The parents refused the Röntgen rays, and the author prescribed olive oil, and awaited events. Sixty-nine days later the child had an attack of apparent suffocation, the nurse inserted her fingers in its throat and drew out the toy key, which was 4/5 of an inch one way by about 2/5 the other. The foreign body had not lodged behind the velum palati, nor in the esophagus. It must have remained in the stomach all this time; the surprising part is that it returned by the same way that it went.

Typhoid Fever in a Seven Months Old Infant.—A. W. Clouse (*Penn. Med. Jour.*, June) based his diagnosis upon the appearance of the stools, which were of the typical "pea soup" variety, the raw spot eruption, enlarged spleen, and continuous fever, combined with the history of the case. The mother had succumbed to typhoid fever two months previously, and had nursed the child until her delirium made it impossible. Widal's test could not be made because of lack of facilities. Treatment was largely symptomatic. Tepid sponge baths when needed for fever and restlessness. Colonic flushings, castor oil and calomel as indicated; salol continuously; whisky and strychnine during later stages. The child recovered. Typhoid is extremely rare under one year of age, or the disease is not recognized. The case is the more interesting because the source of infection was probably the mother's milk. Typhoid fever was not epidemic in the community at the time, the mother having contracted the disease directly from nursing a sister who had acquired it in a distant city.

A Singular Case of Lead Poisoning in an Infant.—Giovanni Berti (*Riv. di Clin. Ped.*, May) reports the case of a child of two years and four months, which while not sickly, had never been very strong. A troublesome eczema caused the use of Hebra's ointment, which the mother applied with a zeal equal to her previous neglect of the child. The eruption was nearly cured, but the patient began to show signs of weakness, preferring to play quietly in bed, and having a decided objection to moving about. The lower limbs became powerless, then the arms, and finally the head drooped on the chest. The mother took alarm at this and called in a physician, who at first made a diagnosis of infantile paralysis, which he soon abandoned and sent the child to the author in consultation. The case was sufficiently puzzling, but a diagnosis of lead poisoning was decided on, the use of Hebra's ointment stopped, and iodine treatment begun. A satisfactory recovery followed.

Variation in the Composition of Human Milk.—Philip P. Sharples and Eugene A. Darling (*Boston Med. and Surg. Jour.*, April 16, 1903) state that the average composition of human milk as shown by 117 analyses, is: Fat, 2.91; sugar, 7.01; proteids, 1.34; ash, 0.13; total solids, 11.39; solids not fat, 8.48. (2) There are wide variations from the average in milk from the same individual at different times. (3) There are marked variations in the average composition of milk from different individuals. (4)

The average composition of human milk does not vary to any marked extent at different periods of lactation. (5) During the first lactation the milk, on the average, is weaker in fat and proteids, but stronger in sugar than in subsequent lactations. These differences may or may not be due to age.

Whooping Cough: A New Method of Treatment.—Theron Wendell Kilmer (*N. Y. Med. Jour. and Philadel. Med. Jour.,* June 20, 1903) says that the medicinal treatment which has proved the most efficacious in his hands is that devised by Dr. Kerley, namely, the alternate use of antipyrin with bromide and quinine. The application of an elastic belt to the abdomen or thorax (or both), as occasion requires, combined with the above medicinal treatment has proved itself to be the best and most effective method in the treatment of whooping cough. A stockinette band is placed upon the child in the same manner as is done by orthopedists before applying the plaster-of-Paris jacket. This band extends from the axillæ to the pubes and fits snugly. Two shoulder straps are used to prevent the band from slipping down. Upon this stockinette band a single width of elastic bandage is sewn, extending entirely around the body and covering the abdomen. This bandage is sewn on when very slightly on the stretch. This elastic abdominal belt is used to control the obstinate vomiting seen especially in nurselings, when the infant in some cases would die without its use, on account of the inanition caused by the incessant vomiting. The most aggravated cases of vomiting in nurselings have been seen to stop immediately upon the application of the elastic abdominal belt. Should the vomiting continue after the belt has been applied, tighten the belt slightly and in most cases the vomiting will cease. There are, of course, occasional cases that will not yield. The belt is also of use in aborting the paroxysmal stage; when wearing it the paroxysms will be noticeably milder. In some cases it causes a slight eczema of the underlying skin, but this clears at once when the belt is removed.

ERRATUM.

In the paper of Dr. G. Brown Miller, on "Congenital Dilatation of the Gall-bladder and Bile Ducts," in the August issue, Fig. 1 and Fig. 2 were transposed. The author's case is that numbered Fig. 1.

ORIGINAL COMMUNICATIONS.

THE ABDOMINAL AND PELVIC LYMPHATICS, AND THEIR RELATIONSHIP TO CANCER OF THE UTERUS.[1]

BY

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It is very difficult, in these days of exact science, concentrated energy and precise thought to evolve new things. Our recent gynecologic literature, however, has been more enriched by intelligent discrimination and honest revelation concerning vital issues than by the publication of novelties.

A collective and individual study of the subject of this thesis seemed warranted by the conflicting statements regarding it with which we are confronted in medical literature.

I have endeavored to thoroughly familiarize myself with the opinions held by the different gynecologists and abdominal surgeons throughout the world regarding cancer of the uterus and the associated part played by the abdominal and pelvic lymphatics. I have personally made a series of careful dissections of the female pelvis, with the double object of verifying our anatomic knowledge concerning the lymphatic structures connected with the uterus and of estimating the surgical possibilities and limitations associated with their removal. As a further aid in arriving at

[1] A thesis written for admission to the American Gynecological Society.

practical conclusions in this regard, I carried out some experiments on the living bitch. One of the nodes of the iliac chain was dissected out, and an aniline dye was injected into it under pressure, distending the node and forcing the fluid on into the lymphatic vessels and other nodes composing the chain, in order that I could form some conception, by following the color lines left by the dye, of the intricate anastomosis of the lymphatic system of the iliac region and locate the smaller nodes, which would escape notice in the course of ordinary dissection. I also forced the dye into the uterus, between the muscular coats, so that I might follow its tracings out along the broad ligament to the pelvic wall. After the injections were made, and the elasticity of living structure could not be further utilized, the animal was killed, and dissections were carried out. I have studied a large number of microscopic slides illustrative of the subject in question. Besides, I have visited, for the express purpose of looking into this subject as thoroughly as possible, a number of the surgical centers of Europe and America, so that I might personally interview those admittedly most familiar with this subject, as well as to have opportunity to note the practical results of their investigations as evidenced at the operating table.

As I desire the accompanying thesis to be as brief and as simple as possible, I have decided to make use of no quotations in its composition, but will append a bibliography which will give due credit to those whose opinions and work have been carefully considered in its preparation.

The anatomy of the lymphatic structures of the uterus and their connection with the lymph nodes of the pelvis and abdomen is fairly well understood, although capable of still further study.

Beginning at the mucous membrane of the uterus, and going outward, the lymphatic anatomy is briefly as follows: In its incipiency the cancerous growth is simply a localized process originating either in the squamous epithelium of the vaginal portion of the cervix, in the cylindrical epithelium of the cervical canal, or in the cylindrical ciliated epithelium of the corpus. From this starting point the epithelial new-growth dips into the spaces within the underlying connective tissue, and proceeds in its course through this structure until larger lymph spaces, lined with endothelium and found around the capillaries and glands of the uterus, are reached. Small lymph vessels communicate with these lymph spaces, and empty into other perivascular lymph vessels between

the middle and outer muscular layers of the uterus. Here we find a perfect network of anastomotic lymph vessels from all parts of the uterus. After passing through the meshes of this lymphatic network, the carcinomatous cells emerge from the borders of the uterus into a limited number of large lymph vessels, which pass into and through the parametric connective tissue superstructures to communicate with the general lymphatic system of the pelvis and abdomen.

The lymphatics of the cervix, after passing out to the periphery, become convoluted, and coalesce with neighboring vessels to form two to four good sized vessels on each side, which, after passing through one or two small lymph nodes found in the parametrium a short distance from the cervix, accompany the uterine artery through the parametric tissue to the lateral wall of the pelvis, where they cross the hypogastric vessels and obturator artery and nerve, and empty into the nodes at the bifurcation of the common iliac arteries. Frequently one or two of the lymph vessels, originating from the cervix, instead of accompanying the other lymph vessels to the pelvic wall, pass into the sacro-uterine ligaments, ascend in front of the sacrum, and discharge into one or two of the sacral lymph nodes.

The lymphatics of the fundus, after reaching the periphery, coalesce into two trunks on each side, which pass through the broad ligament between the Fallopian tube and ovary, and, following the course of the ovarian artery, empty into the lumbar nodes. The lymphatics from the uterine horns coalesce to form one or two small vessels on each side, which accompany the round ligament and empty into the upper nodes of the inguinal group. Oftentimes a lymph vessel from the fundus empties into the nodes at the bifurcation of the iliacs.

There has been a good deal of confusion in the descriptions of the abdominal and pelvic lymph nodes which are connected with the uterus. This seems unnecessary. The anatomic arrangement of the nodes into four general groups is very simple. The first group, which we may designate the iliac lymph nodes, is a practically continuous chain of nodes extending along the iliac vessels from the retroinguinal space to and embracing the common iliac vessels. This group drains the upper part of the vagina, cervix, and bladder, and occasionally assists in draining the fundus. The second group, known as the sacral lymph nodes, is found on the antero-lateral aspect of the sacrum, and drains the rectum and assists in draining the cervix. The third group,

known as the median lumbar lymph nodes, is found lying over
the second, third, and fourth lumbar vertebræ, around the aorta
and inferior vena cava, and drains the fundus and ovary.   The
fourth group is the well-known inguinal group, the upper nodes
of which drain the uterine horn and the Fallopian tube.   This
group must include a node found lying on the obturator membrane
and connected with the inguinal nodes.   For purposes of more
accurate description and differentiation it would seem advisable
to subdivide the iliac nodes into four sets, although practically
they form one continuous chain, the names given to these con-
forming with their anatomic and vascular relations.   The first
set, three or four in number, lying in the retroinguinal space, is
called the subinguinal profunda nodes; the second set, usually
three in number, surrounds the external iliac artery, and is known
as the external iliac nodes; the third set, two or three in number,
found around the junction of the external and internal iliac ar-
teries, is called the hypogastric nodes; while the fourth set,
usually three in number, surrounding the common iliac vein, is
designated the common iliac nodes.   All these sets of lymph nodes
are intercommunicating, and the common iliac nodes send efferent
vessels to communicate with the lumbar nodes.   Some authorities
make the common iliac nodes the lower division of the median
lumbar, but this seems to me to be an anatomic error, as their
relationship with the hypogastric and external iliac nodes is much
more intimate than their relationship with the lumbar.

The sacral group of lymph nodes, comprised of five or six small
nodes, is situated partly along the course of the median sacral
artery, and partly at the anterior sacral foramina surrounding the
lateral sacral vessels.   The sacral nodes on either side intercom-
municate with each other, and also anastomose with the common
iliac nodes.

The lumbar nodes, although generally depicted as a disorderly
bunch of four or five nodes, lying on the front of the aorta and
inferior vena cava, showed, in my dissections, a very definite order.
Three or four large nodes ran along the left side of the aorta,
and partly overlapped it; a similar number were found on the
right side of the artery, between the artery and vein, and almost
completely covered by the vein; these two chains, lying over the
second, third and fourth lumbar vertebræ, were connected about
the level of the second lumber vertebra by two or three nodes
running across the front of the artery.   There was also a general
vascular intercommunication between the two sets of vertical

nodes by means of lymphatic vessels running behind the aorta.

While the above anatomic detail gives us a fairly good appreciation of the usual lymphatic arrangement, it must, in truth, be observed that one often encounters many inconstancies. The lymph nodes in the parametrium are not constant; one of the hypogastric nodes is sometimes found abnormally placed, in which case it usually lies upon the internal iliac vein; a lymph vessel has been observed springing from the corpus uteri and emptying into a small node at the intersection of the uterine artery and the ureter; the vessels from the cervix, described as passing through the sacro-uterine ligament to empty into the sacral nodes, are not constantly present; a hypertrophied node has been observed in the linea alba, a short distance below the umbilicus, in cancer of the fundus, undoubtedly an extension from the inguinal nodes; injection of the cervix of cadavers, with subsequent removal of the uterus and careful search of the pelvic cavity, has revealed the fact that several lymph nodes in various positions, other than the regular nodes, were injected. These and other minor irregularities, while frequently present, do not materially affect the general arrangement from a surgical standpoint.

Now comes the question, What surgical relation do the parametrium and lymph nodes bear to cancer of the uterus? In considering this question I will limit the discussion to the part borne by the parametrium and nodes in cancer of the cervix. This limitation is made for the following reasons:

1. The removal of the lymph nodes most affected by cancer of the fundus—the lumbar nodes—has not, as yet, been surgically attempted.

2. The involvement of lymph nodes in cancer of the fundus occurs much later than in cancer of the cervix, and from a practical surgical standpoint rarely occurs in operable cases; and, further, the permanent results after operations for cancer of the body, if performed reasonably early, are comparatively satisfactory. The reasons for this seem to me to be two-fold. In the first place, cancer of the fundus often runs a course of benign adenoma, with characteristic symptomatic disturbance—hemorrhage—before actual malignancy sets in; and, in the second place, a new growth in the fundus is spared the irritating pressure that harass a similar new growth in the cervix by reason of the greater density of the pericervical connective tissue.

In the consideration of the subject of involvement of the parametrium and lymph nodes in cancer of the cervix, we have to

face such a conflict of opinion that at first sight we are non-plussed. Deeper investigation, however, enables us, in large measure, to account for the wide discrepancies existent in our literature. The view is not tenable that such disparity can exist in the surgical condition of the patients presenting themselves for treatment. It becomes us, then, to critically investigate the conception and methods of the men whose conclusions are so much at variance. Here, I think, we can find the true solution of the difficulty and understand the reasons for the apparent conflict in resultant opinions.

A thoughtful consideration of the following statements will pave the way for a critical review of the premises:

1. Invasion of the parametrium usually precedes involvement of lymph nodes; in fact, the parametrium is the first tissue involved by direct extension in cancer of the cervical canal.

2. The parametrium may be considerably infiltrated by carcinomatous deposit without giving palpable or ocular evidence of the same; and, moreover, a thickening and induration of the parametric structures does not necessarily imply malignant involvement.

3. Enlarged lymph nodes are not always cancerous; cancerous nodes are not always enlarged.

4. Cursory microscopic examination of lymph nodes often fails to reveal an existent carcinomatous deposit. Each node must be completely cut into serial sections, and each section examined before a definite opinion can be pronounced.

Let us now take up the above statements seriatim and amplify them.

The parametrium must necessarily, from its anatomic relation, be the first tissue affected by metastatic infiltration in cases of cancer of the cervix. Involvement of the pelvic lymph nodes would rarely take place except as a secondary complication to parametric involvement. Indeed, theoretically at least, we would always presuppose a carcinomatous infiltration into a parametric lymph space of considerable size to be a necessary forerunner of infiltration of lymph nodes. A few exceptional cases, however, have been reported in which the pelvic nodes were involved without concomitant parametric involvement. It is possible that in these rare cases the infection traveled by way of the nerve trunks—the sacral plexus—as recent researches have proven that the perineurium, epineurium and endoneurium may become invaded by cancer cells, which travel thence by means of the lymph radicals and lymph

spaces of the nerves. The lamellæ of the nerve sheath become separated by the cancer cells, which cover the connective tissue membranes in the form of an epithelial layer, and there proliferate, and thence travel further. One observer succeeded in injecting, from the sciatic nerve, the entire pelvic lymphatic system as high as the lumbar nodes, which proves the intimate relationship existing between the nerves and the lymphatics in the pelvis. Excluding, however, exceptional cases, the fact remains that usually we have primary parametric involvement and secondary involvement of lymph nodes. This being so, if we could always operate before the infection travels beyond the parametrium we would be able to exclude removal of lymph nodes from our surgical calculations. We have, however, at the present time, no certain means of knowing when the disease has traveled beyond the confines of the parametrium. But this we do know, that the parametrium is next to the uterus in relative importance of removal in cancer of the cervix; that it is involved in at least fifty per cent. of all our cases; and that its thorough removal in every case should double the percentage of permanent cures, which, in truth, is shamefully low. The exact percentage of parametric involvement is hard to determine, but taking an average of opinion fifty per cent. is a conservative estimate, and this estimate refers to the cases presumed to be operable.

We so often hear such remarks as "the parametrium was normal," or "the parametrium had evidently escaped infiltration," these remarks being simply an excuse for bare extirpation of the uterus. Abundant evidence is furnished in the literature to prove the fact that in many, I might say most, cases we are likely to be deceived as to the real condition of the parametrium if we rely solely on palpable or ocular evidence. An increase in the connective tissue stroma cells or a vascular hyperemia may cause a thickening, likely to be misunderstood; while, on the other hand. actual epithelial masses may be present in the lymph spaces and give no macroscopic sign of their presence.

One of the most pertinent causes for differences of opinion has been the fact that surgeons have been looking for *enlarged* rather than *diseased* lymph nodes. The assumption has been common that all enlarged nodes found in the neighborhood of cancerous disease were cancerous, and that non-enlarged nodes had escaped metastasis. Abundant evidence is at hand to prove the incorrectness of such an assumption. From the external appearance of the lymph nodes the nature of the anatomic alterations within

cannot be guessed. Four factors may cause their enlargement.

1. A simple hyperemia, the result of extraordinary functional activity.

2. A simple hyperplasia, a secondary result of long-continued hyperemia.

3. Secondary infection of the node with pyogenic bacilli from an ulcerating focus in the original tumor, with the concomitant tissue alterations consequent upon such a condition.

4. Actual deposit of cancer elements in the node.

In regard to this last cause, it must not be forgotten that while lymph nodes are frequently enlarged when the seat of cancerous deposit they are by no means always so, as we frequently find, on microscopic examination, cancerous deposits in nodes macroscopically normal. It has been asserted that carcinomatous lymph nodes are readily distinguished from simple hyperplasia by the presence of a peculiar hardness associated with the increase in size. This undoubtedly is true in some instances, but too much confidence must not be placed in this diagnostic sign. The day will probably come, when surgeons will have had so much experience in palpation of nodes that fine differentiations will be made; but at present it is safe to assert that few, if any, are so expert with their fingers as to diagnose unerringly the histologic condition existing in a node from outside palpable evidence, while the novice might easily mistake the resistance of normal nodes for manifestation of disease.

The microscopic research of suspected nodes has furnished another potent source of disagreement. Two factors have been active in causing this discord. In the first place, there has been a conspicuous lack of thoroughness in histologic detail work on the part of many investigators; and, in the second place, there has been a difference of opinion in regard to the meaning of certain microscopic delineations that have come to light in the course of histologic investigation. We would suppose that statistics regarding node involvement would bear a direct relation to the amount of care expended on histologic investigation; and such, indeed, is indubitably the truth. The majority of investigators have been satisfied with making a section or two through some part of a node removed at operation, and failing to find evidence of cancer in those particular sections have assumed that the entire node was free from involvement. Such an assumption is just as erroneous as that which assumes all enlarged nodes in the neighborhood of a cancerous focus to be cancerous. Epithelial deposit

may be present in one part of a node and absent from all other parts; indeed, in the early stages of node involvement this is the rule rather than the exception. In order, then, that histologic data concerning this subject may have any value, it is necessary that each node be cut into serial sections, and each section submitted to individual examination. This necessarily implies a vast amount of work, and only in exceptional instances has the investigation of this important matter been thus conscientiously and scientifically carried out. Most of the data on the subject must be entirely discarded on account of our lack of knowledge as to the thoroughness of the microscopic work on which opinions have been based. Frequently several hundred sections of nodes have been examined in a single case before one containing malignancy was found.

In examining microscopically the regional lymph nodes in carcinoma of the cervix, we find in about twelve per cent. of the cases anomalous epithelial formations. The pictures presented are multifarious. In the majority of instances we find narrow, more or less branched, gland-like structures, lined with a single layer of high cylindrical epithelium. Sometimes these gland-like structures are much dilated—as though cystic—appearing like a mucus-filled space, while the epithelium is often low and flattened, resembling endothelium. Occasionally we find in them ciliated epithelium. In the main these structures are found in the connective tissue of the periphery of the lymph node, almost directly below the capsule or not far from it. Here and there they force themselves more or less deeply between the alveoli towards the interior of the node, and sometimes they broaden out into the parenchymatous tissue of the alveoli. In some cases we find a lymph node permeated with these interesting tubular, gland-like formations, while in other cases we find only an occasional one.

Now the questions arise, What is the meaning of these structures, and what relationship do they bear to carcinoma? Do they represent an erratic transitional stage of real carcinomatous metastasis, or is their presence in the nodes purely the result of embryonic accident? Many authorities deny any relationship between these structures and carcinoma, for the following reasons:

1. The elegance and regularity of their structure.

2. The presence, oftentimes, in the structure of a sort of connective tissue membrane.

3. The occasional presence of ciliated epithelium.

4. The fact that the epithelium present in the structures sometimes differs from that composing the original tumor.

These investigators explain their presence by assuming them to be an embryologic aberration of epithelium from the Wolffian body. In opposition to those who hold this view, other of our leading observers claim these epithelial formations to represent a true metastasis, even though differing histologically from typical cell nests. There is much to substantiate this latter view :

1. It is hard to understand how fractional parts of the Wolffian body reach the interior of the lymph nodes.

2. Carcinomatous masses are not infrequently surrounded by a sort of connective tissue.

3. The presence of ciliated epithelium is not always evidence opposed to the carcinomatous nature of such structures, as ciliated epithelium has been found by several authors both in the primary tumor and also in metastatic formations.

4. It does not necessarily follow that the histologic character of all metastatic formations must be the same as that of the primary tumor, as metaplastic changes may have taken place. For instance, typical cancroid masses have been observed proliferating from carcinomatous glands in the uterine fundus.

5. At the Bettina-Pavilion in Vienna the pelvic lymphatics in eighty cadavers presenting no evidences of cancer were cut into serial sections and these sections carefully examined without revealing, in a single instance, the presence of these bastard epithelial formations.

6. I have observed in some sections three distinct pictures that would lead me to believe these epithelial formations to be a primary transitional stage of a real carcinomatous metastasis. In one part of the section the simple gland-like formations are seen; in another part the simplicity of the picture is gone, the gland-like structures being surrounded and partially filled with epithelial masses; and, further along in the same section the gland-like formations, as such, are entirely absent, this part of the section being filled with characteristic carcinomatous deposit.

One readily sees that statistics are much altered by the opinion formed concerning these structures, occurring, as they do, in such a considerable percentage of cases. And just here the question is in order, What is the percentage involvement of lymph nodes in carcinoma of the cervix? If foreign statistics are to be relied upon, thirty-five per cent. would strike a fair average, computed upon the basis of investigation of over four hundred cases; but, allowing for differences in conception and in methods of investiga-

tion, twenty-five per cent. would appear to me to be a conservative estimate.

Then comes the momentous question, Is it desirable to attempt the removal of the regional nodes as a routine measure in cancer of the cervix? If the nodes are involved in one case out of every four, the question seems to almost answer itself. The surgeon who would amputate a cancerous breast and fail to remove, as far as possible, the regional lymphatics, would be regarded as a very inferior operator. Why should not the same criticism apply with equal force to the regional lymphatics in cancer of the cervix? The time is ripe for gynecologic surgeons to look a few unadulterated facts straight in the face. In the first place, the bare removal of the uterus cannot be regarded as anything but a palliative measure; in the second place, the parametric connective tissue structures should be removed as thoroughly as possible in all cases; in the third place, if we wish pelvic surgery to be consistent with the principles of general surgery, we must attempt the removal of the regional lymph nodes in dealing with cancer of the cervix. I use the word attempt advisedly, because I do not for a moment wish to convey the idea that I consider it a feasible surgical procedure to denude the pelvis of all of its lymphatic contents; the practical scope of the procedure, however, will increase in direct ratio to our familiarity with the technical details involved. The men who are getting the best permanent results from the surgical treatment of mammary cancer are those who, as far as is possible, systematically clear the subclavian and axillary vessels of their surrounding adipose and cellular tissue, with the contained nodes. It is not a surgical impossibility, though technically very difficult, to clear away most of the connective tissue, with its contained lymphatic structures, from around the obdurator and iliac vessels; and with the use of more feasible methods, and greater familiarity with this particular dissection, the procedure will soon lose much of its difficulty and become thoroughly recognized as a practical, scientific operation entitled to serious consideration. It is rather discouraging to find one of our leading journals editorially refer to those who advocate intelligent consideration of removal of nodes as "the school of theorists," and assert that such chimeras have long since been abandoned. There has never been a time in gynecologic history when this subject has received such forcible consideration as is being expended upon it at the present time. It is true that the subject was raised in this country a few years ago and abruptly dropped; but the spark lighted here then

has since become a blaze in Germany and Austria, and during the last year this very matter has been the chief theme of discussion at almost all gynecologic congresses and society meetings in Germany, to say nothing of the fact that considerable attention has been paid to it in nearly all other countries, our own among the number. It was really a noteworthy fact that at the meeting of the International Congress for Gynecology and Obstetrics, held in Rome last September, the five representative men from different countries, who read papers on "The Surgical Treatment of Uterine Cancer," without an exception advocated the removal of the regional nodes as a routine practice in cancer of the cervix. Furthermore, the majority of the best German gynecologists are to-day practising lymph node removal. I admit that in many instances their methods are very imperfect, and in many others purely farcical; still, out of just such imperfections of detail must a greater degree of perfection be produced. It is painfully apparent in many of the foreign operating rooms that the attempt at node removal does not represent any really scientific effort, but is a purely theoretical grand-stand performance; and it is just as apparent in other operating rooms that serious, painstaking effort is being made to accomplish some really practical results along this line of surgical adventure, and from such honest labor a truly meritorious harvest may, sooner or later, be expected.

The question of operative procedure in cancer of the cervix is hardly embraced in the scope of this thesis; nevertheless, it seems pertinent to the subject to make a few general statements:

1. The desiderata, in order of relative importance, are:
    a. Removal of the uterus.
    b. Removal of the parametric connective tissue.
    c. Removal of the upper part of the vagina.
    d. Removal of the regional lymphatics.

2. Vaginal hysterectomy has no place as a curative operation in cancer of the cervix. Nothing but palliative benefits should be expected from it. Undoubtedly it will die a hard and lingering death on account of its ease of performance, its low mortality rate, and the fact that the occasional surgeon can readily perform it. It is gratifying, however, in perusing our late literature, to see the overwhelming preponderance of opinion in favor of some abdominal method of operating.

3. The abdominal route, which would include the combined abdominal and vaginal, is the only one that permits us to be sufficiently radical to obtain results that promise some hope of per-

manency. I do not deem any operation worthy of consideration that does not succeed in accomplishing at least the first three of the above-mentioned desiderata; the fourth will gradually grow out of the performance of the other three. Such a radical operation as is here implied presents technical difficulties that will be surmounted only by experienced surgeons, and even with these it will not be popular until they have, with prolonged practice, reduced the operation to a reasonable time-limit of performance and cut down its higher mortality rate. The disease we aim to ameliorate is assuming such awful proportions that we must abandon all traditional routine and thoughtfully adopt such measures as seem to promise more lasting benefits, regardless of the difficulties to be overcome in their adoption.

4. That operation will outlive all others which permits the accomplishment of the previously mentioned desiderata with the least injury to peritoneal structures, and at the same time affords the greatest protection to the ureter and important vessels.

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BIBLIOGRAPHY.

ABEL: Early Diagnosis of Carcinoma Uteri. Archiv f. Gyn., Bd. 6, H. 2.

ADAMKIEWICZ, A.: Is Cancer Curable? Berlin klin. Wochenschr., June 10, 1901.

AMANN, J. A.: Remarks on the Therapeutics of Carcinoma. Trans. 9th Congress German Gyn. Soc., May, 1901.

AMANN, J. A.: A New Way of Extirpating the Carcinomatous Uterus. Centralbl. f. Gyn., June 15, 1901.

BALDY, J. M.: Cancer of the Uterine Neck with Comments on the Present Day Teaching. Amer. Med., Aug. 3, 1901.

BALDY, J. M.: Cancer of the Uterine Fundus. Med. Record, June 22, 1901.

BALLERAY, G. H.: A Plea for Early Diagnosis and Treatment in Cancer of the Uterus. Trans. Med. Soc. State of N. J., 1902.

BEHLA, R.: "Cancer a Deux" and Infection with Cancer. Deutsch. med. Wochenschr., June 27, 1901.

BELLOEUF: Thèse de Paris, 1900.

BEZANCON and LABBÉ: Lymphatic Ganglia and Cancer. Soc. Anatom. de Paris, April 7, 1899.

BLAU and DYBOWSKI: Cited by Winter—Anatomie des Carcinoma Uteri. Veit's Handb. der Gyn., Bd. 3.

BOURSIER, ANDRE: Vaginal or Abdominal Hysterectomy for Cancer of the Uterus? Jour. de Méd. de Bordeaux, 31 ème an., No. 14.

BOLDT, H. J.: Vaginal versus Abdominal Hysterectomy for Cancer of the Uterus. Am. Gyn. & Obst. Jour., Dec., 1900. ·

BOVÉE, J. WESLEY: Cancer of the Uterus. Am. Jour. Obst., Vol. 42, p. 543.

BRUHNS, C.: Ueber die Lymphgefässe der Wieblichen Genitalien. Arch. f. Anat. u. Physiol., 1898, S. 57.

BRIEGER, L.: Inoculation Metastasis of Carcinoma. Deutsch. med. Wochenschr., Nov. 20, 1902.

BURRAGE, W. T.: Operative Treatment of Cancer of the Uterus. Boston Med. and Surg. Jour., July 24, 1902.

BYERS, JOHN W.: Uterine Cancer. Am. Med., Aug. 10, 1901.

CHAVANNEZ: Carcinoma of the Cervix. Rev. Mens. de Gyn., Obst. et Paed. de Bordeaux, July, 1899.

COE, HENRY C.: Cancer of the Uterus. Med. Record, March 31, 1900.

COURTOIS-SUFFT: The Lymph Glands in Cancer. Jour. des Praticiens, 1901, No. 21.

CONANT, W. M.: Cancer of the Uterus. Boston Med. & Surg. Jour., May 16, 1901.

CROOM, J. HALLIDAY: Vaginal Hysterectomy for Cancer. Edinbor. Med. Jour., March, 1899.

CULLEN, T. S.: Cancer of the Uterus. 1900.

CULLEN, T. S.: Cancer of·the Uterus and Its Early Diagnosis. Med. Record, Vol. 56, p. 874.

CULLEN, T. S.: The Operative Treatment of Cancer of the Uterus. Trans. Internat. Cong. Gyn. & Obst., Rome, Sept., 1902.

CURRIER, A. F.: Cancer of the Uterus. N. Y. Med. Jour., March 2, 1901.

CUSHING, E. W.: Operation for Recurrence of Cancer after Hysterectomy. Ann. Gyn. & Ped., Sept., 1902.

DEAVER, J. B.: Abdominal versus Vaginal Hysterectomy for Uterine Carcinomata. Jour. Am. Med. Assn., June 30, 1900.

DEAVER, J. B.: Results of Treatment of Cancer of the Cervix and the Unreliability of Statistics on the Same. Am. Jour. Obst., Vol. 43, p. 214.

DE BOVIS, R.: Some Phases of the Cancer Problem. La Semaine Médicale, Sept. 10 & 24, 1902.

DOEDERLEIN, A.: Discussion on Carcinoma Uteri. Cong. German Gyn. Soc., May, 1901.

DOEDERLEIN, A.: Ueber Abdominelle Extirpation des Carcinomatoesen Uterus nach Wertheim. Centr. f. Gyn., 1902, No. 26, S. 681.

DORLAND, W. A. N.: The Coexistence of Carcinoma and Fibroma in the Corpus Uteri. Phil. Med. Jour., March 30, 1901.

DOWNES, A. J.: Electrothermic Hysterectomy for Cancer. Amer. Gyn., Dec., 1902.

DUDLEY, E. C.: Diseases of Women. 1899.

DUDLEY, A. PALMER: Abdominal versus Vaginal Hysterectomy for Cancer of the Uterus. N. Y. Acad. of Med., Nov. 22, 1900.

DUNNING, L. H.: Carcinoma of the Cervix Uteri. Am. Assn. Ob. & Gyn., Sept., 1902.

ERNST: Verbreitung des Carcinoms in den Lymphbahnen der Nerven. Centralbl. f. Gyn., 1902, No. 38, S. 1005.

FREUND, W. A.: The Radical Operation for Cancer of the Uterus, with Especial Consideration of the Lasting Results. Trans. 9th Cong. German Gyn. Soc., May, 1901.

FREUND, W. A.: Zur Erweiterten Freundschen Operation bei Krebs der Gebärmutter. Zeitschr. f. Geb. u. Gyn., Bd. 46, S. 206.

FREUND, W. A.: Die Chirurgische Behandlung des Carcinoma Uteri. 4th Internat. Cong. for Gyn. & Obst., Rome, Sept., 1902.

FREUND, W. A.: The Pelvic and Abdominal Lymphatics in Their Relation to Cancer of the Uterus. Personal Communication.

FRITSCH : Discussion on Carcinoma Uteri. 9th Cong. German Gyn. Soc., May, 1901.

FUNK, A.: Beitrag zur Abdomin. Total Extirpation. Muench. med. Wochenschr., 1901, S. 309.

GRANT, W. W.: Carcinoma of the Uterus. Trans. Rocky Mountain Interstate Med. Assn., 1899.

GELLHORN, G.: The Lymph Glands in Uterine Cancer. Am. Gyn., Vol. 1, p. 476.

HANDFIELD-JONES, M.: A Clinical Lecture on Diagnosis in Cancer of the Body of the Womb. Lancet, Jan. 19, 1901.

HARTMAN, H.: Cancer of the Uterus. Ann. de Gyn. et d' Obst., April, 1901.

HAUSEMANN, V.: Pathologic Anatomy and Histology of Carcinoma. Deutsch. med. Wochenschr., Aug. 15, 1901.

HUMISTON, WM. H.: Early Recognition of Cancer of the Uterus. Jour. Am. Med. Assn., Sept. 29, 1901.

IRISH, I. C.: Abdominal Hysterectomy for Cancer of the Cervix. Boston Med. & Surg. Jour., 1899, p. 251.

JACOBS, C.: Total Abdominal Hysterectomy for Uterine Cancer. Bull. de la Soc. Belge de Gyn. et d'Obst., T. 13, No. 2.

JOHNSON, J. B. T.: Futility of Vaginal Hysterectomy for Cancer. Med. Record, Vol. 55, p. 798.

JONNESCO, T.: Traitement Chirurgical du Cancer de l'Uterus. 4th Internat. Cong. Gyn. & Obst., Rome, Sept., 1902.

JORDAN (Heidelberg): Discussion on Carcinoma Uteri. 9th Cong. German Gyn. Soc., May, 1901.

JORDAN : Operative Treatment of Carcinoma Uteri. 30th Cong. German Surg. Soc., Berlin, April, 1901.

KELLY, H. A.: Operative Gynecology. 1898.

KELLY, H. A.: The Present Status of Operations for Cancerous Uteri. Jour. Am. Med. Assn., May 19, 1900.

KELLY, H. A.: An Improved Method of Removing the Cancerous Uterus by the Vagina. Bull. Johns Hopkins Hosp., March, 1900.

KERMAUNER and LAMERIS : Zur Frage der Erweiterten Radikaloperation des Gebärmutterkrebses. Beitr. z. Geb. u. Gyn., Vol. 5. No. 1.

KLEIN, C.: Abdominal Extirpation for Recurrent Carcinoma 1¾ Years after Vaginal Extirpation of the Uterus. Centralbl. f. Gyn., Oct. 12, 1901.

KROEMER : Klinische und Anatomische Untersuchungen Ueber den Gebärmutterkrebs. Arch. f. Gyn., Vol. 65, No. 3.

KRONIG: Total Abdominal Extirpation of the Carcinomatous Uterus. Monatschr. f. Geb. u. Gyn., Bd. 15, H. 6.

KUSTNER: Abdominal Operation for Cancer of the Uterus. Trans. 9th Cong. German Gyn. Soc., May. 1901.

LABHARDT: Late Recurrence of Carcinoma after Operation. Beitrage z. Klinisch. Chirurg., 1902, Bd. 33, S. 571.

LANDAU, T.: Surgical Treatment of Uterine Cancer and Its Recurrence. Brit. Med. Jour., May 27, 1899.

LAMPHEAR, E.: Hysterectomy for Cancer of the Uterus. Am. Jour. of Surg. & Gyn., 1898.

LEARY, T.: Pathology and Pathologic Diagnosis of Carcinoma of the Uterus. Boston Med. & Surg. Jour., April 17, 1902.

LEILL, E. N.: The Present Status of Cancer, Its Etiology and Pathology; the Value of Laboratory Research. Med. News, Sept. 20, 1902.

LENNANDER, K. G.: The Removal of Lymph Glands from the Inguinal Region and Along the Iliac and Obturator Arteries. Centralbl. f. Chirurg., Sept. 16, 1899.

LESER: The Treatment of Cancer. Muench. med. Wochenschr., Aug. 13, 1901.

LEWERS, H. N.: Abdominal Panhysterectomy for Cancer of the Uterus. Lancet, Jan. 5, 1901.

LEWERS, A. H.: The After Results in 40 Consecutive Cases of Vaginal Hysterectomy Performed for Cancer of the Uterus. Lancet, Jan. 5, 1901.

MACKENRODT: Pelvic and Abdominal Lymphatics in Their Relation to Cancer of the Female Genitalia. Personal Communication.

MACKENRODT: The Radical Operation for Cancer of the Uterus and Vagina, with Cleaning out of the Pelvis. 9th Cong. German Gyn. Soc., May, 1901.

MAUCLAIRE: A Propos de l'Hystérectomie Totale. Paris, 1899.

MANGIAGALLI: La Gynécologie. 1900.

MANN, MATTHEW D.: Report on Recent Advances in Gynecology. Am. Therapeut. Assn., N. Y., May, 1902.

MARTIN, A.: Discussion on Carcinoma Uteri. 9th Cong. German Gyn. Soc., May, 1901.

MARTIN, F. H.: Operative Treatment of Carcinoma Uteri. Med. Record, Vol. 53, p. 855.

MONTGOMERY, E. E.: Text-book of Gynecology. 1900.

MONTGOMERY, E. E.: The Operative Treatment of Cancer of the Uterus. Am. Gyn. & Obst. Jour., Vol. 18, No. 3.

MONTGOMERY, E. E.: What Can Be Done to Lessen the Mortality of Carcinoma Uteri? Phil. Med. Jour., Jan. 10, 1903.

MONTGOMERY, E. E.: The Early Recognition of Malignant Disease of the Uterus, and the Proper Course of Treatment. Phil. Med. Jour., May 14, 1898.

McMURTRY, L. S.: The Prophylaxis and Diagnosis of Cancer of the Uterus. Trans. Am. Med. Assn., 1900.

McMURTRY, L. S.: The Treatment of Cancer of the Uterus. Am. Jour. Obst., Vol. 39, p. 217.

NOBLE, C. P.: The Ultimate Results of Operations for Cancer of the Uterus. Trans. Penn. State Med. Soc., 1901.

OLSHAUSEN: Inoculation Metastases of Carcinoma. Deutsch med. Wochenschr., Oct. 16, 1902.

OLSHAUSEN: The Statistics of and Operation for Cancer of the Uterus. Ninth Cong. German Gyn. Soc., May, 1901.

OLSHAUSEN : Operative Treatment of Carcinoma Uteri. Thirtieth Cong. German Surg. Soc., Berlin, April, 1901.

O'CALLAGHAN and DARDENNE : Abdominal Hysterectomy for Cancer of the Uterus. Lancet, March 8, 1902.

PAPPEL, E.: Carcinoma of the Uterus. Monatschr. f. Geb. u. Gyn., Bd 13, H. 1, 2, 3 & 4.

PEISER, E.: Anatom. und Klinishche Untersuchungen Ueber den Lymph-Apparat des Uterus, etc. Zeit. f. Geb. u. Gyn., Bd. 43, S. 259.

PENROSE, CHAS. B.: Notes on Cancer of the Fundus Uteri. Ann. of Surg., June, 1899.

PICHEVIN : Curability of Uterine Cancer, Necessity of an Early and Correct Diagnosis. Jour. de Med. de Paris, Dec. 23, 1900.

PLAYFAIR, W. S.: System of Gynecology. 1896.

POLAK, JOHN O.: Early Diagnosis of Uterine Cancer; Operative Limitations. N. Y. Med. Jour., July 19, 1902.

POLK, W. M.: Discussion on Abdominal versus Vaginal Hysterectomy for Cancer of the Uterus. N. Y. Acad. of Med., Nov. 22, 1900.

POLK, W. M.: Extirpation of the Uterus, Vagina, and Rectum for Carcinoma. Am. Gyn. & Obstet. Jour., March, 1900.

PORIER, P.: Lymphatiques des Organes Genitaux de la Femme. Paris, 1890.

POZZI, S.: Treatise on Gynecology. 1897.

POZZI, S.: Indications et Resultats de l'Hystérectomie dans le Cancer de l'Uterus. Fourth Internat. Cong. for Gyn. & Obst., Rome, Sept., 1902.

PRYOR, W. R.: Abdominal versus Vaginal Hysterectomy for Cancer of the Uterus. Med. Record, Dec. 8, 1900.

PRYOR, W. R.: Vaginal Hysterectomy for Carcinoma of the Uterus. Boston Med. & Surg. Jour., April 17, 1902.

RICHARDSON, MAURICE : Remarks on Cancer of the Uterus. Boston Med. & Surg. Jour., July 24, 1902.

RICHELOT, L. G.: Relative Value of the Vaginal and Abdominal Operations in Extirpation of the Pelvic Organs. Ann. Gyn. & Ped., July. 1900.

REICHELMANN, W.: Eine Krebsstatistik vom Pathologisch-Anatom. Standpunkt. Berlin. klin. Wochenschr., 1902, No. 31-32.

v. ROSTHORN, A.: Erfahrungen Ueber die Momentanen Heilerfolge. Centralbl. f. Gyn., 1901, S. 588.

REYNIER : Total Abdominal Hysterectomy in Uterine Cancer. Third Internat. Cong. Gyn. & Obst., 1899.

RUSSELL, W. W.: The Operative Significance of Metastases and Post Operative Recurrences in Carcinoma of the Uterus. Am. Jour. Obst., Vol. 34, p. 857.

RYALL, CHAS.: Vaginal Hysterectomy for Carcinoma Uteri. London Letter, Med. Rec., Dec. 15, 1900.

REYBURN : Carcinoma. Washington Med. Ann., Sept., 1902.

SAPPEY, P. C.: Anatomie Physiologie et Pathologie des Vaisseaux Lymphatiques. Paris, 1874.

SCHAFFER, R.: Inoculation of Carcinoma. Zeitschr. f. Geb. u. Gyn., Bd. 45, H. 3.

SHATZ: Discussion on Carcinoma Uteri. Ninth Cong. German Gyn. Soc., May, 1901.

SCHARLIEB, M. A. D.: Vaginal Hysterectomy for Cancer; Its Limitations and Results. Brit. Med. Jour., Sept. 15, 1900.

SCHUCHARDT, CARL: Paravaginal Hysterectomy for Uterine Cancer. Archiv. f. klinische Chirurg., Bd. 64, H. 2.

SEELIG, A.: Path-Anat. Untersuchungen Ueber die Ausbreitungswege des Gebärmutterkrebses. Inaug. Dessert., Strassburg, 1894.

SENN, N.: The Present Status of the Carcinoma Question. Med. Record, July 13, 1901.

SHAW, W. V.: The Cancer Problem. Lancet, Sept. 20, 1902.

SHRADY, GEO. F.: Hysterectomy for Cancer of the Uterus. Editorial, Med. Record, Sept. 17, 1898.

SINCLAIR, W. J.: Clinical Aspects of Carcinoma in Women. Brit. Med. Jour., June 28, 1902.

SMITH, A. LAPTHORN: A Change Needed in Our Practice in Dealing with Cancer of the Uterus, etc. Am. Jour. Obst., Aug., 1902.

SUTTEN, STANSBURY: Treatment of Uterine Carcinoma. Internat. Jour. of Surg., Nov., 1900.

SUTTON, R. S.: Cancer of the Uterus. Trans. Miss. Valley Med. Assn., Oct., 1900.

SUTTON, J. BLAND: Cancer Infection. Clin. Jour., Jan. 24, 1900.

VEIT, J.: Discussion on Carcinoma Uteri. Ninth Cong. German Gyn. Soc., May, 1901.

VINEBERG, H. N.: Very Early Recurrence of Carcinoma in the Vaginal Scar Following Abdominal Hysterectomy for Adeno-Carcinoma of the Fundus Uteri. Am. Jour. Obst., Vol. 45, p. 583.

WAGNER, ERNST: Der Gebärmutterkrebs, Eine Pathologisch-Anatomische Monographie. Leipsic, 1858.

WALDEYER, W.: Das Becken. Bonn, 1899.

WERDER, X. O.: A New Operation for the Radical Treatment of Cancer of the Cervix. Am. Jour. Obst., 1898, Vol. 37, p. 289.

WERTHEIM, E.: A New Series of Operations for Cancer of the Uterus with Extirpation of the Parametria and the Neighboring Lymph Glands. Ninth Cong. German Gyn. Soc., May, 1901.

WERTHEIM, E.: Total Extirpation of the Vagina Through the Abdomen. Centralbl. f. Gyn., Dec. 29, 1900.

WERTHEIM, E.: Zur Kenntniss der Regionären Lymph-Drüsen Beim Uteruskarzinom. Centralbl. f. Gyn., Jan. 24, 1903.

WERTHEIM, E.: Lymphatics in Uterine Cancer. Archiv. f. Gyn., Bd. 61, H. 3.

WERTHEIM, E.: Die Chirurgische Behandlung Uterus Carcinoms. Fourth Internat. Cong. Gyn. & Obst., Rome, Sept., 1902.

WERTHEIM, E.: The Pelvic and Abdominal Lymphatics in Their Relation to Cancer of the Female Genitalia. Personal Communication.

WILLIAMS, W. R.: The Clinical Features of Uterine Cancer. Lancet, 1896, Vol. 2, p. 1086.

WILLIAMS, JOHN: Cancer of the Uterus. London, 1888.

WINTER, G.: Anatomie des Carcinoma Uteri. Veit's Handb. der Gyn. Bd. 3.

WINTER, G. Ueber die Radicaloperation Bei Carcinoma Uteri. Trans. German Gyn. Soc., 1901, p. 49.

WINTER, G.: Ueber die Recidive des Uteruskrebses. Insbesondere Ueber Impfrecdive. Zeitschr. f. Geb. u. Gyn., 1893, Bd. 27, S. 101.

WUELFING, H.: Zur Pathologie der Geswulstbildung im Weibl. Geschleshtsapparat. Zeitschr. f. Geb. u. Gyn., Bd. 44, S. 1.

WYLIE, W. Gill: Abdominal versus Vaginal Hysterectomy for Cancer of the Uterus. N. Y. Acad. Med., Nov., 1900.

ZWEIFEL, P.: Ueber Abdominale Extirpation des Carcinomatösen Uterus Nach Wertheim. Centralbl. f. Gyn., 1902, No. 26, S. 681.

CONSERVATIVE SURGERY OF THE FEMALE PELVIC ORGANS.[1]

BY

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MANY gynecologists have been criticised for recklessly removing pelvic organs which show no marked evidences of disease. This criticism, originating frequently in the profession, soon spreads to the laity, and it is not uncommon to hear women speak of our best men as "too ready to remove ovaries."

Whatever may be true of the past, it certainly is a fact that in recent years an earnest effort has been, and is being, made to overcome this prejudice and to learn the risk and ultimate results of conservative surgery of the uterine appendages. Since Goodell and Polk introduced this subject in a discussion before the Congress of American Physicians and Surgeons at Washington, in 1894, I believe it is true that most surgeons of wide experience in pelvic disease have attempted to study this question in their work. It is significant that at the last International Congress, held in Madrid in April, this subject was thoroughly discussed by the leading operators of the world. The advances in technique and the reduction in mortality of pelvic surgery have been so great in recent years; the mental, physical and moral disadvantages of the artificially induced menopause, have been so unfortunate in many cases, that efforts to preserve for woman the function that has

[1]Read in part by invitation before the Lancaster County Medical Society, April 1, 1903.

been both her glory and her weakness, are but a natural sequence of the past decade of surgical progress.

The reasons for conservative surgery of the uterine appendages may be found in the following propositions:

1. Possible preservation of the power of procreation in organs seriously damaged by disease. The value of that power to the individual, the family and the state, and the perpetuation of domestic happiness in individual instances, are sociological problems at once apparent to the thoughtful physician, but their discussion, however attractive, must be laid aside in this communication which aims to discuss the practical surgical aspects of the question.

2. The second important reason for preserving an ovary or portion of an ovary is the retention for the woman of her menstrual function. The function of the ovary is no longer thought to be solely procreative. Like other ductless glands it is thought to have a function of secreting something which in an unknown manner helps to maintain nervous equilibrium and in this function is analogous to the thyroid and the adrenals. Women who have been deprived of their ovaries very often manifest most unfortunate nervous symptoms. Irritability, nervous depression, morbid states of mind, hysterical and neurasthenic symptoms are by no means uncommon. It is to prevent all these that the progressive gynecological surgeon is now studying this most important phase of his work. Definite indications, perfected technique, immediate and remote dangers, and the final results of this work are being worked out in the progressive clinics of the world, and the well informed physician will watch the results with interest second only to that of the surgeon himself.

Indications and limitations.—(*a*) Suppurative diseases of the appendages. It is true that even suppurative disease of the appendages has been treated conservatively and with success by some operators, but the risk to life and ultimate comfort is so great that such cases, in my judgment, should only exceptionally be submitted to that risk. Once the capsule of the ovary is incised or otherwise injured, the ovarian tissue is readily invaded by infection. Lawson Tait long ago declared that incomplete operations would always be the opprobrium of pelvic surgery. When the infection, especially if known to be gonorrheal, is an old one, and the absence for a long period, of recurrent attacks of pelvic peritonitis indicates disappearance of active infection; when the one side to be saved is only slightly involved in the suppurative

process, and finally, when there are urgent reasons or strong de-
sire for offspring, the risk is justifiable with the patient's knowl-
edge of the danger and of the probable necessity for a second
operation to effect a cure. These limitations almost wholly ex-
clude suppurative cases from serious consideration of conserva-
tive work.

(*b*) Sometimes the ovary, otherwise healthy, is adherent to
the wall of a parovarian cyst and can be removed from the cyst
wall and left to continue its function. I have been able to do
this in three patients with most satisfactory results.

(*c*) The failure of palliative treatment to relieve the distress-
ing symptoms due to prolapse of the ovary, induced surgeons not
long ago to remove the otherwise healthy organ. Conservative
surgery no longer sanctions such a sacrifice. Stitching the ovary,
at a proper level, to the posterior surface of the broad ligament
or shortening the infundibulo-pelvic fold of the broad ligament,
to elevate the ovary, will relieve the distressing symptoms without
sacrificing the ovary. Some of the failures to relieve pain fol-
lowing ventro-suspension and Alexander's operation are due to
a prolapsed ovary which those operations have not corrected. The
degree of prolapse should always be noted and corrected if neces-
sary when either of those operations are performed.

(*d*) The evacuation of the blood clot by vaginal section in extra-
uterine pregnancy and nature's ultimate repair of the affected tube
and ovary as evidenced by subsequent pregnancy, is a phase of
conservatism in dealing with this affection which has been advo-
cated by some surgeons. Unless the hematoma of a ruptured tubal
pregnancy be one of relatively long duration, this procedure is too
dangerous to be accepted. The immediate danger of uncontrollable
hemorrhage, short of opening the abdomen, and the remote dan-
ger of inflammatory changes are too great.

(*e*) The prompt incision of the vaginal vault and extensive
gauze packing to limit the spread of puerperal infection, as rec-
ommended by Henrotin and Pryor, is a plan of treatment that has
limitations, but is conservative in its aims.

(*f*) The removal of uterine fibroids, submucous or subperitoneal,
by myomectomy rather than by hysterectomy, and the preservation
of normal ovaries, even after the latter operation, is the conserva-
tive method of treating fibroids, which has engaged the surgeon's
attention long enough to draw definite conclusions as to the risk,
the indications, and the limitations of conservative myomectomy.

(*g*) The most important field of conservative surgery upon the

pelvic organs includes the chronic cases in which the operator finds structural changes in the tubes and ovaries producing unilateral or bilateral lesions of greater or less extent. Hydro- and hemato-salpinx, ovarian hematomata, small single or multiple cysts of the ovary and varying degrees of visceral adhesions. These lesions may be bilateral and slight, or as commonly offered for conservative work, one side is irreparably diseased and must be removed while the other offers possible success from conservative work. Puncture and drainage of a small hydro-salpinx, dilatation of an occluded tube, incision into an occluded tube at its fimbriated end, and an effort to maintain a patulous opening by stitching together the mucous and peritoneal coats; ignipuncture or excision of small cysts or of a hematoma of the ovary and closing the opening with a fine catgut stitch, are technical details of this class of work.

Associated with chronic pelvic inflammations, structural changes in the appendix are so frequently found that conservative surgery is now studying the advisability of removing the appendix in all cases where the abdomen is opened for any cause. It has been my custom for several years to remove the appendix when operating for pelvic disease, whenever that organ was macroscopically diseased, but during the past year I have gone farther and have removed the appendix in all cases except when the patient's general condition or the severity of the operation in hand, made the additional time required for its removal a distinct danger to the patient. There has been no mortality attributable to the appendectomy, and as a conservative operation it is, in my judgment, justifiable and indicated.

Since Hegar first advocated resection of the ovary, some of the most distinguished surgeons of widest experience with pelvic inflammations have declared, as axiomatic, that "incomplete pelvic surgery will not cure." That doubtless is true of gross visceral lesions, but there are cases to which conservative efforts are applicable. The results of this work have not been widely studied up to the present time, and each operator must add his experience to that of many others before definite indications and limitations can be generalized. During the past eight years of my own experience in conservative work, I find that my records comprise forty-two patients with chronic pelvic inflammation, from whom I have endeavored to learn the results of my work by letters and in some cases by personal examination. As the cases have occurred in two of my hospital services, many changes of address

have occurred, and some of the letters have been returned. Replies have been received from twenty-eight patients. Secondary operations by myself have been performed six times. How many have undergone a second operation at the hands of other operators is not known. Of the replies received 35 per cent. have failed to be benefited; 15 per cent. have undergone secondary operations to be relieved; 30 per cent. have been improved; 20 per cent. suffer no discomfort. Of ten married women replying to my inquiries, two have borne children twice. As types of cases not benefited and requiring a second operation, I shall read the histories of two cases, and follow them by the history of a case in which the results have been most satisfactory.

CASE I.—Miss A., aged twenty-four years, had measles four years ago, followed by pneumonia and peritonitis two weeks after the rash of the measles had disappeared. Her menses occurred at the age of eighteen, have always been irregular, scanty and painful, especially during the past year, when rest in bed for a week at each period has been necessary. Complains of constant pelvic pain and a yellow vaginal discharge, sometimes offensive, and has noticed this especially during the last two years.

Upon examination, the uterus was found anterior; the posterior fornix was filled by a large mass, which gave the impression of a distended tube and ovary, very painful and very sensitive. The notes of the operation at the Methodist Hospital are as follows: Right tube distended; right ovary cystic, the size of an orange, and adherent in the posterior cul-de-sac. The left ovary, small and sclerotic, contained several follicular cysts; fimbriæ of left tube are occluded and there is a small hydrosalpinx involving the outer third of the tube. The hydrosalpinx was evacuated and the puncture closed by a fine silk stitch. The fimbriated end of the tube was opened and dilated, and the ends stitched back. Two small cysts of the ovary were punctured and the cavities lightly curetted, the redundant portions of the cyst wall were trimmed away and a fine silk stitch introduced. The right tube and ovary were removed. Convalescence, afebrile and satisfactory in every respect.

The patient passed out of observation, having been requested to report from time to time, as I wished to follow her history. She was told of the attempt to save the left tube and ovary. This first operation was performed in January, 1897. In July of the same year, the patient returned with the following history: Since the operation performed in January the relief from pain on the

right side has been complete (the side from which the ovary and tube were removed), but two months after operation the opposite side began to be painful, and the pain has steadily increased up to that time.

A large, exceedingly tender cystic mass was found in the left vaginal fornix. Operation advised. Incision through the old scar found the wound firmly united throughout its entire length. A knuckle of intestine, firmly adherent, about one inch to the left of the incision was released. The pelvic organs were examined and showed the stump on the right side surrounded by a few adhesions. The left vaginal fornix was filled with a cyst the size of a small orange, which with its tube was removed. The patient has been well since this second operation, almost six years ago.

Case II.—Sept. 13th, 1899. Mrs. V., æt. 30. Married eight years; one child six years ago; miscarriage at fourth month four and a half years ago. Curettement and trachellorrhaphy by a surgeon in Cincinnati. Examination: Left ovary and tube enlarged and cystic, adherent, prolapsed and very tender. Right side normal in size but adherent. Operation: Left ovary (two thirds destroyed by cystic degeneration and hematoma) and left hydrosalpinx removed. Right tube and ovary freed from adhesions. Ovary small, sclerotic but not cystic; fimbriæ of tube occluded, forming a small club-shaped hydrosalpinx. Incision over dorsum of the tube into pavilion to make a new orifice; peritoneal and mucous coats stitched with fine catgut; tube patulous to uterine cavity. One year later the patient returned, complaining of profuse menstruation and constant pain and tenderness in right ovarian region. A cystic tumor the size of a sausage was found. The second operation disclosed complete cystic degeneration of the ovary and a hydrosalpinx involving the outer half of the tube which were removed. Since the last operation she has remained perfectly well.

Case III.—An opportunity was given me to study the anatomical results of plastic work on the tube and ovary in the case of Edith D., operated upon in my service at the Philadelphia Hospital in 1899. I removed the appendages of one side, suspended the uterus, resected one-third of the ovary, and opened a hydrosalpinx of the left side, stitching the fimbriæ. Two months ago I operated on this woman to correct the retroversion that had returned. The suspension ligament, which forms after the operation, had been completely absorbed. The left tube and ovary,

however, showed a perfect result following the plastic work that
had been done four years before.

From a study of my records of all these cases and their replies,
and from the patients whom I have had an opportunity to examine,
and from the secondary operations I have performed, I have
drawn some conclusions which will help me to formulate rules to
guide me in this work in the future. Speaking generally, the re-
sults in the total series of cases have been somewhat discouraging,
and sometimes difficult to understand. In cases where the original
lesions treated by conservative methods had been unilateral and
not extensive, and therefore brilliant results were anticipated,
sometimes the disease progressed rapidly and a secondary opera-
tion has been required. On the other hand, when an earnest en-
thusiasm or the patient's expressed desire had perhaps made me
carry conservative efforts to an extreme, the most fortunate re-
sults have followed. All of which means that no surgeon can
with confidence predict the outcome in individual cases or in a
large proportion of his operations, and that fact, first of all, must
be made clear to each patient and her wishes must in some measure
influence the operator after the abdomen has been opened. The
next fact that my inquiries have seemed to establish is that future
fertility depends more upon the condition of the tube and upon
successful efforts to restore its calibre and integrity than upon suc-
cessful plastic work on the ovary. The relief of pain, a most im-
portant matter to the patient, rarely follows plastic work on the
ovary. Thus it will be observed that the patient whose aim is to
bear a child must be told that the preservation of her ovarian
function may not wholly relieve her from the pain which brought
her to the surgeon, and that the continuation of pain, often less-
ened because one and the more seriously affected side has been re-
moved, will sometimes be the price she must pay for the possi-
bility of bearing a child. The cases in which secondary opera-
tions have been performed show very clearly that follicular cystic
degeneration, after the removal of the appendages of one side, is
very prone to be progressive, and cases presenting more than one
or two single and especially deeply seated cysts are likely to pro-
gress to diffuse structural changes in the ovary and to the necessity
for a second operation.

The age of a patient will often help a decision in doubtful cases.
A woman forty or more years of age, especially if she has chil-
dren, should rarely be subjected to the risk of a second operation,
while for a young unmarried girl, serious doubt as to the ultimate

curative result will often induce the operator to decide in favor of an attempt to preserve her menstrual function and her procreative power. The nervous temperament, physical force and recuperative powers of the patient also have their influence. It is an axiom born of desperate struggles between alienist and gynecologist, that double oophorectomy in neurasthenic or hysterical women, often leaves them more wretched than before the operation. The preservation of the menstrual function in such cases has been, in my experience, more beneficial than its destruction. Women of strong nervous force and physical vigor, and who are indifferent to pain, have been the most favorable for successful conservative work. Finally, the patient's expressed wishes after a fair explanation of the risks to her comfort and of the possible necessity for a second operation, must often influence the surgeon's decision.

PERSONAL EXPERIENCE WITH ALEXANDER'S OPERATION FOR RETROVERSION OF THE UTERUS.[1]

BY
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My personal experience with Alexander's operation for retroversion of uterus, dates from Februrary, 1890. During the period intervening between that date and the present time, I have had about 200 cases. From this fairly large personal experience I shall consider briefly in the time at my disposal:

First—The class of cases suitable for the operation.

Second—Advantages of this operation over other methods of treatment.

Third—My results.

Fourth—Technique of operation.

First—Cases suitable for the operation I would classify under two heads: (a) simple uncomplicated retroversion, with free mobility of organs; (b) some cases complicated by disease of appendages, non-suppurative and where adhesions are not too dense; in such cases after breaking up adhesions, and dealing with complications through the dilated internal inguinal ring, the ligaments can be shortened and fixed in the usual way. All cases, however, of suppurative disease of appendages or non-suppura-

tive cases with dense adhesions, binding organs to neighboring viscera, as intestine or bladder, are unsuitable cases for this operation, as such conditions can be dealt with, with greater safety through a median abdominal incision.

Second—The advantages of the Alexander operation over other methods of treatment. In simple uncomplicated cases of uterine retroversion suffering from symptoms calling for treatment, there is a choice between treatment by pessary and some one of the surgical operations devised for the radical cure of the displacement. The objections to the pessary treatment are: (1) at best it is simply palliative. I have never seen a cure by the pessary. (2) The instrument can never be worn comfortably for any length of time. (3) It is liable to get displaced and cause ulceration of mucous membrane of vagina, and even fistulous openings into rectum and bladder. (4) It may be, and no doubt has been a factor in causing infection of uterus and appendages and peritoneum. On account of these objections, I would advise surgical intervention in preference to the pessary treatment in the vast majority of cases, and, in my opinion, the Alexander operation should be preferred to other surgical methods devised for a radical cure. Over the operation of ventro-suspension, which I consider the best of all the methods where a median abdominal section is made, it has the advantage of not being attended with any of the risks from this operation; viz., (1) The slight risk of wounding the bladder with incision or with the suspension sutures. (2) Slight subsequent risk from an abnormal ligament between uterus and abdominal wall. (3) The risk of interference with development of uterus during gestation and with the expulsive power of uterus during parturition. (4) The slightly increased risk attending all operations where abdomen is opened in median line.

Over the method of shortening the ligaments after abdominal section, it has the advantage of greater safety. Shortening the ligaments through a vaginal incision, even in the hands of one who is an expert in operating by the vaginal route, is attended by risks to the future health of the woman from more or less infection of pelvic peritoneum, which cannot well be avoided, and from accidental injury to bladder which may occur. The Alexander operation is free from such risks. I have had no personal experience with this last method of operating for retroversion of uterus, but in one case in which this operation had been performed, I was called upon subsequently to open the abdomen for pelvic and abdominal pain. The tangled, matted condition met with, the re-

sult of infection of the pelvic peritoneum, did not tend to impress me favorably with this method of treatment.

Third—My results. (1) There has been no death among my list of cases. I may therefore, I think, safely say that with the Alexander operation there should be no mortality. (2) If the case is a suitable one and the operation properly performed, there should be no recurrence of the displacement. Among my earlier operations, when our technique was not what it now is, infection and suppuration occasionally occurred, and in one or two cases was followed by recurrence of displacement. Among my earlier operations I have also had recurrence in one or two cases not suitable for the operation in which there were slight adhesions holding uterus back. In all such cases both uterus and appendages should be properly freed before shortening and fixing ligaments, otherwise recurrence will take place, no matter how trifling and insignificant the adhesions may appear to be. With a few exceptions from the causes I have mentioned the cure of the displacement has been permanent. (3) I have followed several cases during subsequent pregnancy, parturition and the puerperium. The only sensation during gestation, directly resulting from the operation, which I have heard patients complain of, was a sensation of tightness over region of inguinal canals. There has been no interference with the development of uterus during gestation, and no interference with parturition. During the puerperium, involution goes on rapidly and normally, and there is no tendency to recurrence of displacement. In cases of retroversion not operated on, which become pregnant and go to full term, the displacement almost invariably recurs after delivery, during the process of involution. In such cases involution is invariably slow and imperfect, showing in this a marked contrast with cases in which the operation has been performed. For this reason alone, I would advise the operation as a measure favoring more rapid and complete convalescence after parturition. (4) I have not seen hernia in the cicatrix follow in any of my cases, and I do not think it should follow if the operation is properly performed. I have in several cases cured small and large inguinal hernia, complicating the condition for which the operation was performed.

Fourth—Technique of operation. The intestinal tract should be cleaned out on the day preceding that set for the operation, by purgatives and enemas. A hot soap and water bath should be given the evening before the operation. Abdomen, pubes

and vulva should be prepared by shaving and cleaning with soap and water and bichloride solution, and a bichloride pad applied. Vagina should be prepared by swabbing out with green soap and water, a bichloride douche, followed by plain water douche, and a packing of iodoform gauze should then be inserted. At the operation the uterus should be curetted as the endometrium is in most cases in an abnormal condition. If the vaginal outlet is relaxed from old lacerations this should be corrected by a plastic operation. After the uterus and pelvic floor have been attended to, the uterus is put in normal position, if freely movable, and a gauze packing inserted in the vagina. The operation for shortening the ligaments should then be performed. Taking the pubic spine as a guide, an oblique incision is made over the external ring and inguinal canal on one side down to the aponeurosis of the external oblique. The pillars of the external ring are carefully exposed, particularly the external pillar. This is of importance, for in some cases the external ring is very small, scarcely any ring at all, and in some cases there are two or more openings, and the wrong opening may be mistaken for the ring, and time be wasted in searching for the ligament, or the parts may be so disarranged in the search that the ligament cannot be found. I have never yet failed to find the ligaments. At the external ring there is only one place for the ligament, and if carefully looked for, it may invariably be found coming out over the external pillar, usually accompanied by the genital branch of the genito-crural nerve, lying anterior to the ligament. In order to find the ligament after the external pillar is exposed, the fascia between the pillars should be nicked, and with the finger slight pressure made on the aponeurosis just outside of the external pillar, slightly everting this pillar, when the ligament may be seen bulging a little on the inner side of pillar. Avoiding the nerve, the bulging ligament is caught with blunt forceps and gentle traction employed. Traction should be gentle, because at this point the ligament is small and spread out fan-like, some of the fibers passing out over the pillar, while others pass backwards into the floor of the canal. The sheath surrounding the ligament is adherent to the floor and aponeurosis. If strong traction is made, the sheath is torn and the delicate fibers of ligament broken, and the stump may retract into the peritoneal cavity, thus complicating the operation considerably. By gentle traction and the use of a small blunt hook or director the ligament can usually be easily separated and drawn out of its sheath without opening up the canal. When once

separated from its sheath it comes out quite easily, getting larger and resembling in appearance a frog's leg. If there should be any difficulty in freeing the ligament at the external ring the canal can be opened up, when the ligament can be quite readily freed. It should be drawn out as far as possible, usually four or five inches. After the ligament on one side has been gotten out, that on the other should be freed in the same way before proceeding further with the operation. The peritoneal pouch accompanying the upper thick portion of the ligament should be peeled back before the ligament is fixed.

In cases where it is thought advisable to explore the pelvis intraperitoneally, the canal should be opened up, the peritoneal pouch accompanying ligament opened, the finger introduced and the pelvic organs examined. Any posterior uterine adhesions can be broken up, the ovary and tube, if necessary, can be drawn out through the ring, and any pathological condition attended to. The opening in the peritoneum can then be closed by a running suture of cat-gut, and the ligaments fixed in the usual way. In these cases, however, to prevent any risk of subsequent hernia, the canal should be closed, as in Bassini's operation for inguinal hernia. Ordinarily, the ligaments may be fixed by two or three sutures of fine chromicized gut, passed through the pillars of the ring and ligament, care being taken not to include the nerve, and not to strangle the ligament. These sutures when tied bring together the pillars of ring, fixing the ligament between the pillars. The external wound may be closed by a running suture of cat-gut in the deep layer of superficial fascia, and another running suture in the skin.

Before closing the external wound, the excess of ligament may be cut off, any oozing from the stump checked, and the stump then buried in the superficial fascia at the lower angle of wound, or the excess of ligament may be doubled back and sutured in wound. A gauze pad is applied over each wound and held in place by strips of plaster and a T bandage so arranged as to keep up moderate pressure over the wound.

I do not consider a pessary necessary after operation if the patient is kept in bed three weeks. The vaginal gauze packing is removed about the third or fourth day. Care in lifting should be exercised for three months.

If, during the operation, either ligament should accidentally break, and the stump retract into the peritoneal cavity, the canal should be opened up, the deep epigastric vessels exposed, and the

peritoneum opened above and to the outer side of these vessels. The retracted stump can then be caught, brought out and fastened, and the peritoneum and canal closed in the way mentioned.

In several cases I have broken the ligament at the lower terminal end, but retraction of the stump into the peritoneal cavity occurred in only one of my cases. Such an accident, however, is in every case, in my opinion, the fault of careless manipulation in freeing the ligament.

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SOME REMARKS UPON RETRODEVIATIONS OF THE UTERUS.

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(With two illustrations.)

MORE than forty-five different methods for the cure of retro-displacement of the uterus have been proposed and published. To these may be added as many or more pessaries, or devices, all of which have been stoutly defended by the respective inventors as being efficient cures for the affection. The numerous operative procedures and great array of supporters, attest the inefficiency of any one method in the treatment of all cases. For the purpose of study in this discussion, flexion and version will be associated together and treated as one affection. The mooted question as to the normal position of the uterus should be easily settled. From the nature of its ligamentous attachments the organ, in any event, could not maintain an independent, upright position unless it were supported by a full bladder and intestine. Intra-abdominal pressure alone would certainly force it either forward or backward. Its position is but slightly affected by posture but it closely follows all the excursions of the bladder. In the position usually found in health intra-abdominal pressure is exerted in a manner which holds the organ in contact with the bladder, the fundus pointing toward the front. It being found in this situation in the large majority of women in health, and pathological conditions never being the result of such position per se, we conclude that this it its normal location. In most subjects, the uterus lies entirely behind a perpendicular line drawn through the pelvis, touching the soft structures which cover the fifth lumbar vertebra, and is located in the

lower posterior quadrant of a circle the center of which is the
point where a horizontal line crosses the perpendicular as it lies
in contact with the upper border of the fundus (Fig 1). Thus it
is evident that the uterus lies behind the abdomen instead of di-
rectly beneath it. Pressure in this position is exerted principally
from behind in a direction from the hollow of the sacrum, and the
force falls upon the postero-superior surface of the uterus and
upon the broad ligaments, helping to maintain the organ in situ.
This combined surface is fifteen to twenty times as great as that
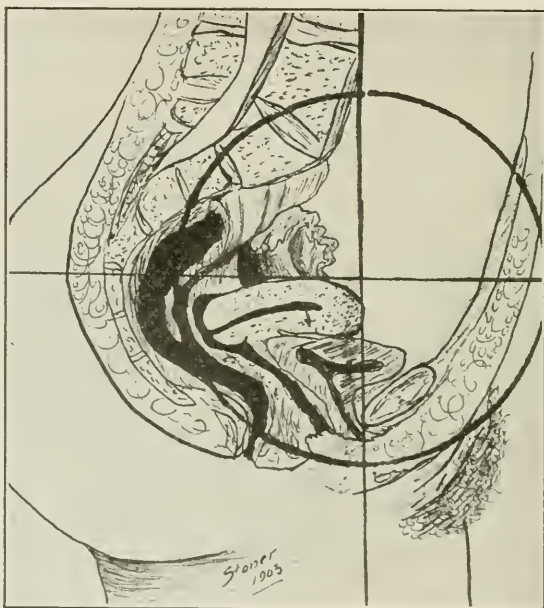
Fig. 1.   (After Dickinson.)

upon which counter force from before backward is exerted. A
glance at these relations readily convinces one that intra-abdominal
pressure exercises little or no influence in producing dislocations.
It must be evident, however, that once the dislocation has oc-
curred pressure is then exerted in a manner disastrous to the
organ, and preventing reposition. The uterus depends for its
support upon the muscles and fasciæ, which form the pelvic floor,
and the so-called true and false ligaments. All have their parts to
perform in supporting the organ and maintaining abdominal
pressure. The true ligaments are made up of unstriped muscle
fibers and elastic connective tissue bands, interwoven around the

pelvic organs in a manner which permits free movement, yet holds them in definite relations to each other.

The false ligaments are the peritoneal coverings of the true ligaments. The broad and uterosacral ligaments are pre-eminent in supporting and maintaining the position of the uterus. The importance of the uterosacral ligaments seems to be constantly overlooked. Without the support of these ligaments the cervix drops forward and downward, and the whole organ tends to sink toward the outlet. These ligaments are made up of true muscle fibers and elastic tissue. They are attached to the postero-lateral portion of the cervix opposite the internal os below and to the points opposite the sacro-iliac juncture above. They thus hold the cervix in an elevated posterior position. In order to bring the ligaments into view the uterus must be forcibly drawn forward. This places the ligaments upon the stretch, when they may be easily observed. The uterus cannot turn upon its axis without either rupturing or greatly elongating these ligaments. Successful treatment of retrodeviation of the uterus depends largely upon a proper conception of the forces which have produced it and more especially upon the pathological complications that so often accompany the malady. Since backward dislocations are frequently accidentally discovered the teaching has almost invariably been against active interference, so long as symptoms are not directly referable to the uterus. Some gynecologists have advised replacing the organ and adjusting a suitable pessary in all cases, regardless of symptoms.

It may be due to inadequate training or lack of adaptation in fitting and adjusting pessaries, but I have never been able quite to satisfy myself of the wisdom of using these so-called supports. It has even occurred to my mind that the necessary and forcible stretching of the uterosacral ligaments induced by the pessary tends rather to retard than to assist repair. I believe, however, that all dislocations should be corrected and maintained in the normal position by some means and at all hazards. A retroverted uterus is in no position to drain, and invites infection, which readily travels to the tubes and ovaries. The return circulation is interfered with and congestion ensues. The broad ligament encroaches upon and smothers the ovaries, or they become dislodged into the cul-de-sac. Finally pressure upon the rectum brings on obstipation, with its train of general disturbances. In many cases in which the pelvic floor is intact, the uterus may be retained without the use of a pessary and a few such cases are apparently cured

after prolonged rest, faradism, hot saline douches, and tamponment with gauze saturated with icthyol in glycerine. The tampon should be changed daily and snugly packed in front of the cervix to prevent its rotating forward, and to help support the sacrouterine ligaments. If the endometrium is diseased curettage becomes necessary. Uterine packing is only indicated to check hemorrhage after curetting. Nothing to my mind is more unsurgical than the practice of packing the uterus with gauze for the purpose of draining after curettement, for instead of draining, it dams, and thus tends to destroy the fruits of the curette. In most cases in which the pelvic floor (meaning the fascia and musculature of the pelvic cavity) has been partially ruptured and its elastic vitality vitiated, a certain degree of uteroptosis is acquired. Indeed, the older authorities have asserted that defective pelvic support was a necessary precursor to retroversion in all acquired forms. Attempts are frequently made to treat such cases by the use of a pessary alone. Failure to retain the organ usually results, and in no case is a permanent cure effected. If there be insufficient support for the uterus, there must likewise be inadequate support for a pessary. While he defends the pessary in suitable cases, Fritsch, of Halle, declares that it is "easier to perform a laparotomy than apply a well-fitting pessary." The harmfulness of a poorly fitted pessary is too apparent to demand discussion here. All of us, who have practised at all extensively in the gynecological field, can testify to the obnoxiousness of the ill-fitted pessary. Not long since I had occasion to remove one which had been constantly worn for more than five years. It had become firmly imbedded and was extracted with some difficulty. The uterus was retroverted and adherent. At the operation subsequently to relieve the condition both tubes were found to be occluded and both ovaries cystic. A large percentage of acquired retroversions have their origin in the puerperium. It may be considered meddlesome midwifery to advise an examination at the end of two weeks after confinement to ascertain if retrodisplacement of the uterus exists. If, however, the well-known figures of Schroeder be true, that more than 25 per cent. of all women suffer from retroversion or retroflexioversion, we will here have an opportunity to prevent permanent dislocation in a large class of patients by the timely interference of rational treatment. I may be pardoned for slightly digressing to call attention to the advice sometimes given, that of suggesting pregnancy as a cure for retrodeviation of the uterus. Such advice, I believe, should be condemned as unscientific and

dangerous. There is nothing connected with the pregnant state that can in the least sense be of value in overcoming such conditions; while there is much to cause serious complications. During pregnancy the pelvic tissues become indolent, suffer from impaired elasticity, and the engorgement ensuing after delivery leaves anything but a desirable condition for the cure of any pelvic affection. Besides the possibility of uterine incarceration during the period of gestation must be born in mind. It goes without saying that many cases of retroversion exist without the manifestation of any appreciable symptom. It is in these cases that so-called conservative, or rather no treatment, is advised by some practitioners, who maintain that such cases are harmless and should receive attention only when symptoms become manifest. So there are many cases of enteric hernia, that so far as symptoms are concerned show the most benignant disposition. Yet who of us would be so careless in our treatment of an inguinal hernia as to wait for the appearance of adhesions or strangulation? Just as the makeshift truss, from the viewpoint of the advanced surgeon of to-day, is relegated to the junk-pile and a radical procedure done, so should all cases of retroversion of the uterus not readily retained in place by milder methods be subjected to operation before irreparable damage is done to the uterus and adnexa.

The operation first proposed by Alexander, that of extraperitoneal shortening of the round ligaments, is most ideal in suitable cases, and in capable hands is almost devoid of danger. While I do not believe that the round ligaments exercise an important function, normally, in maintaining the uterus in its position, they certainly do offer very efficient means for retaining the replaced organ in position, when made to serve such purpose. Alexander's operation should be undertaken only after excluding disease of the adnexa, and uterine and peri-uterine adhesions. To avoid the possibility of hernia the knife should be laid aside as soon as the integument and fascia are incised, and the tissue separated by blunt dissection. Upon reaching the ligament at its exit from the internal ring it is caught with forceps and the wound temporarily covered with gauze and the procedure repeated upon the opposite side. To avoid rupturing the ligaments or swinging the uterus out of line both cords are pulled upon at the same time. The uterus should, however, always be replaced before the operation is begun. When adhesions of the uterus or disease of the adnexa exist, I believe the opening of the abdomen to be most rational. Through this route everything may be easily in-

spected and the most conservative work accomplished. Intra-
abdominal shortening of the round ligament may now be done
or the uterus may be suspended from the abdominal wall. By the
latter method the uterus is left in a very unnatural position; but the
clinical results are usually good. The operation for shortening
the ligaments as proposed several years ago by Mann, of Buffalo,
in my experience deserves the highest credit. The ligaments by
this operation are made of treble strength and are much less
liable to subsequent elongation. This operation alone, however,
does not wholly correct the pathological conditions accompanying
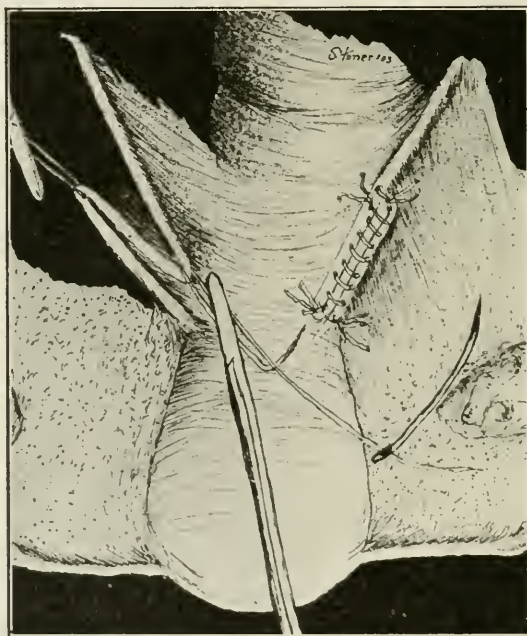
Fig. 2. Author's method of shortening utero-sacral ligaments for retro-
displacement of the uterus.

retroversion. In consequence of the elongation of the uterosacral
ligaments, the cervix is left unsupported. Therefore, these liga-
ments should be shortened to their normal length.

The operation which I have so far found satisfactory is per-
formed as follows: After freeing all adhesions and completing the
necessary toilet of the adnexa, the uterus is brought strongly for-
ward by the aid of a tenaculum forceps inserted in the fundus.
This maneuvre brings the uterosacral ligaments into prominence

and each is transfixed, five c.m. or six c.m. from its attachment to the uterus, with a needle carrying a medium fine silk ligature. Midway between the sutures and the uterus the ligaments are again pierced with a suture. After slightly relinquishing the hold upon the tenaculum, traction is made upon the sutures. The first or higher one is drawn downward toward the uterine attachment and anchored close to its origin to the uterus. The lower one is drawn upward toward the sacro-iliac junction and attached to its fellow. (Fig. 2.) Thus the ligament is folded upon itself as in Mann's operation upon the round ligament. A 1-500 solution of bichloride of mercury should be applied to the edges of the folds to destroy the epithelium and cause adhesion; but care should be taken to wipe dry any excess of the solution. The ligaments must be shortened only enough to place the cervix in an easy elevated position. To aid in folding the ligaments hemostatic forceps may be used to advantage by grasping the traction suture close to the ligament. The operation is completed by whipping together the folds with fine catgut. This operation of itself is sufficient to hold the organ securely. However, as a matter of precaution, the round ligament should be shortened by one of the standard methods. No operation for the cure of this affection is complete, however, without due attention to all complications, such as damaged pelvic floor, lacerations of the uterus, endometritis, etc. Shortening the utero-sacral ligaments I believe to be an ideal method for the cure of retrodisplacement. The operation is simple and is usually easily accomplished. It is productive of no danger of bowel obstruction or pregnancy disorders; two very important points to consider in making up one's mind as to the best operative procedure.

7TH AND LOCUST STS.

REPEATED CESAREAN SECTION UPON THE SAME INDIVIDUAL, WITH REPORT OF TWO CASES.

BY

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CESAREAN section is comparatively rare on this side of the ocean, while repeated operation upon the same individual is uncommon in Europe, where deformities of the pelvis are not rare and the operation is more frequently demanded. It is, however, quite probable that by no means all the cases of this nature have been published and that the operation has been performed more often in the past than the number reported would lead us to believe. The infrequency of more than one operation upon the same person may be judged from the comparatively small number in the literature; for although many may never have appeared in print, yet the same is true to a still greater extent of the single operation.

Strange as it may seem, some of the women operated upon before the days of antiseptic surgery underwent successfully as many operations as any since our more perfect methods and cleanliness have led us to confidently attempt what formerly was the last resort of obstetric art. Since abdominal surgery has gained in safety and Sänger's classical work has placed the operation upon an enduring basis, the number has materially increased; but not to such an extent as might be supposed. Among 135 cases published in the *Archiv f. Gynäkologic*[1] and including all cases of Cesarean section from 1882 to 1888 only 3 were of section repeated upon the same individual.

Leopold,[2] during the 14 years previous to 1896, operated upon 100 cases among which were one with 4, one with 3, and eleven with 2 operations.

At Braun's Klinik,[3] in Vienna, from 1889 to 1899, 74 operations were performed—5 for the second time, and in 1 case for the second and third times.

Olshausen,[4] in 29 cases, operated on 2 cases twice and 2 cases three times each.

At the Leipziger Klinik,[5] among 53 operations were eleven with 2 and four with 3 operations.

According to the statistics of the various clinics a Cesarean section occurs: Leopold, one in 225 cases; Braun, one in 402 cases; Chrobak, one in 901.5 cases.

From the above it will be seen that single Cesarean section is not extremely common, and in all medical literature since 1882 we have found 58 cases which have been delivered on more than one occasion by Cesarean section. To these we add 2 of our own, and appended to the list will be found 2 older cases of the same nature which we came across in our search, and which we have never seen mentioned in any article. The last two are not included in our table for obvious reasons.

In all medical literature at our command we find, including our own cases, 88 cases with two operations; 26 cases with three operations; 5 cases with four operations; 1 case with five operations.

As many of the operations have been reported in a number of different periodicals and have been cited sometimes under the operator's name, sometimes under that of the assistant who wrote the article, the task of keeping the same case from appearing twice has not been an easy one. Furthermore, some have been published with each succeeding operation.

The interest in these operations in this country, owing to their relative infrequency, has led us to report our own two cases, and at the same time to touch upon a few facts concerning repeated Cesarean sections in the past; while considering briefly the results of the repeated sections since the principles laid down by Sänger, in 1882, have come to be generally recognized; although the technique has been varied by different operators.

The initial operations upon these two patients were the first successful cases of conservative Cesarean section in the city of Boston, although Mixter (July, 1888) had previously performed the first successful Porro in this country.

REPORT OF CASES.

CASE I.—*First operation.* G. M.; born in Baltimore, Md.; aged 22; height, about 4 feet, 10½ inches; weight, 100 pounds. Had her first labor pains on Tuesday, November 14, 1894, at 9 o'clock in the morning. They were not severe and were infre-

quent. In the afternoon the pains became harder, and at about
6.30 were good in character, coming at intervals of five minutes
and lasting from one minute to a minute and a half. The position
of the child was O. L. A. The head was well flexed and almost
completely rotated. The cervix was taken up and dilated suffi-
ciently to admit the tips of two fingers. The fetal heart was
heard in the median line half-way between the symphysis and
umbilicus, beating at the rate of 140 a minute. The mother's
pulse was 75, regular and strong. At 11.30 p. m. the condition
was the same, no progress having been made. The pains, how-
ever, were just as severe and just as frequent as immediately
after my arrival. At 1 o'clock a. m., November 15th, the condi-
tion had changed merely in so far as dilation was concerned, the
cervix having dilated to about the size of a half dollar. The
finger ruptured the membranes during this examination, and there
was an escape of a small amount of liquor amnii. At 3 a. m. the
patient was again examined, and the only difference noted was a
very soft cervix, two-thirds dilated and with an edematous ante-
rior lip. Dr. John L. Ames was sent for, ether was given, and
the forceps applied. The head was fully rotated and well flexed,
but not engaged. Traction rods were used, but vigorous trac-
tion did not advance the head. The hand introduced to assist
in the application of the forceps was cramped by the pelvis in all
diameters. The forceps were now removed, and I endeavored as
far as possible to ascertain the measurement of the true conjugate.
It was apparently about 3½ inches. The forceps were reapplied
without success.

Having now used all the strength I thought advisable, I asked
for a consultation, and at 5 o'clock Dr. William L. Richardson
saw the case with me. Traction in his hands resulted as it had in
mine. We advised the Cesarean operation, which was consented
to by the husband. The patient was removed from her house to
the Lying-in Hospital, arriving there shortly after 6 o'clock. The
abdomen and vagina were rendered aseptic by means of soap,
permanganate of potash, peroxide of hydrogen and corrosive
sublimate. Ether was given by Dr. Starbird, and at 7.45 a. m. the
patient was placed upon the operating-table.

Drs. William L. Richardson, Charles M. Green, and Abner
Post were present. Drs. Edward Reynolds, Charles W. Town-
send, John W. Bartol, and Erb assisted, divided as follows: Dr.
Townsend was to care for the baby, Dr. Reynolds was to con-

trol hemorrhage from the uterus, Dr. Bartol was to assist me, and Dr. Erb was to care for the sutures and sponges.

The first cut in the abdominal wall was made at 7.55½ A. M., the peritoneum was incised at 7.57, the uterus was exposed at 7.58, rubber ligatures placed around the uterus 7.59, uterus incised 7.59½, child delivered 8.00½, cord tied and cut 8.01, uterus sutured 8.02 to 8.18½, abdomen sutured 8.12 to 8.31, dressing applied 8.34, patient in bed 8.40. Total time of operation, 35½ minutes.

The incision in the abdominal wall was in the median line, about 7 inches in length and extended down to within 3 inches of the symphysis. The uterus was taken outside the abdominal cavity and covered with hot towels. The incision in the organ was made in the median line, beginning about 2 inches from the top of the fundus and extending downward for about 5 inches. The placenta was attached to the posterior surface of the uterus and was easily removed. The uterus was closed by seven deep silk sutures and by eight superficial ones which united the two peritoneal surfaces. As the uterus was outside there was no blood or detritus in the abdominal cavity. There was apparently no bleeding after the uterine sutures were tied. Ergotine was given subcutaneously, and firm contraction resulted. The abdominal wound was brought together and united by silkworm-gut sutures. The child was a girl, weighing seven pounds and one ounce. Hemorrhage was controlled by the hands of an assistant and the rubber ligature was not tightened.

A few weeks before delivery the patient had recovered from typhoid fever, and there had been more or less trouble with pain and swelling in both legs. This returned about two weeks after delivery, and there was a certain amount of pain and tenderness along the area of the large veins, extending as far as the popliteal space. This entirely passed away in the course of three weeks, and the convalescence after that was uninterrupted. The measurement of the pelvis is of interest. It was of the justo-minor type, and the measurements were: Crests, 9 inches; spines, 8 inches; external conjugate, 6¾ inches; and the internal conjugate, 4¼ inches. Deducting from this last measurement from ½ to ¾ of an inch, gives us a true conjugate of about 3½ inches.

Second Operation.—In 1901 the patient again became pregnant, and it was decided to operate on the expected date without waiting for labor to begin.

Unfortunately for our plans, labor commenced one evening

about five days before the time set, and we were obliged to oper-
ate between 11 and 12 P. M. on January 26, 1902, labor having
been in progress for three hours.

The pains were still slight and infrequent, and the cervix patu-
lous but not taken up. The patient was etherized by Dr. Meade,
and both vagina and abdomen prepared under ether.

Incision was made to right of scar of previous operation.
Omentum adherent in places to the abdominal wall but easily
separated. The adhesions of omentum to uterus were strong and
required quite extensive ligation of its lower edge. Scar on
uterus could not be found. The uterus was brought outside abdo-
men and surrounded with sterile towels. Longitudinal incision
in uterus. Child extracted by feet. Uterus contracted promptly
and membranes came away at once. A strip of gauze was passed
down through cervix into vagina. Uterus sutured with braided
silk passed down to but not including mucosa. Through and
through suture of abdominal wall. Gauze in uterus removed
through vagina. Time of operation, 25 minutes.

Patient made uninterrupted recovery, leaving the bed on the
twenty-first day after operation.

CASE II.—*First Operation.*—E. F.; born in England; 30 years
old; of slight build; weight, about 100 pounds. Entered the
Boston Lying-in Hospital on the 10th day of July, 1894. She
was a patient of Dr. George G. Sears, and was referred by him
to the hospital. She was pregnant for the third time. Her first
pregnancy was terminated by craniotomy, which was followed
by sepsis, and she made a very slow recovery. The second was
terminated by a very difficult version, subsequent to high for-
ceps, by Dr. Edward Reynolds. The result in both cases was
a dead child. Her pelvis was carefully measured by Dr. William
L. Richardson, Dr. Charles M Green, and myself, with the fol-
lowing results: Spines, 9 inches; crests, 10 inches; trochanters,
$10\frac{7}{8}$ inches; the true conjugate, $2\frac{5}{8}$ inches. The conjugate was
apparently less than at the preceding delivery. The reason for
this has not been determined. It must be stated here that she
came to the hospital two months before the operation, seeking
an induced labor, but was advised against it by Dr. William L.
Richardson, as the danger was considered about equal to that of
Cesarean section, and she was very anxious to have a living child.

I shall make no comments upon the pelvis, save to say that it
was too small to allow of but two operations, Cesarean section
and craniotomy. She was prepared for operation by the method

already spoken of, and at 11.15 A.M. Sunday morning, July 15, 1894, she was given ether. She was on the table at 11.30. Drs. E. Reynolds, C. W. Townsend, J. W. Bartol, and Harlow assisted, and Drs. Richardson and Green were present. First cut in the abdominal wall 11.33, abdominal cavity opened 11.34. Uterus delivered from abdominal cavity 11.35½. Ligature around neck of uterus 11.36½. Uterus opened 11.38½. Placenta delivered 11.38 and 45 seconds. Baby delivered at 11.38 and 55 seconds. Membranes delivered 11.39 and 20 seconds. Sutures begun in uterus 11.42, finished at 12.04. Sutures begun in abdominal wall 12.07, finished 12.19. Patient in bed 12.35. She recovered easily and with very little nausea from the anesthetic.

There was no bleeding from abdominal incision. Thickness of abdominal wall was about one-half inch. The bleeding from the uterus was very slight after the first gush, which was apparently merely the blood held in the organ. After the sutures were in position there was no bleeding. The abdominal cavity was not washed out, and the organ was merely replaced after suturing and the abdominal walls united. A subcutaneous injection of ergotine was given. The patient had in the evening an enema of bromide of potash. She was for a day or two more or less hysterical, was given bromide and champagne. The baby was nursed from the beginning and gained steadily in weight. The mother was up in three weeks and left the hospital in four weeks. Her temperature chart is uninteresting. There was a slight rise during the first 48 hours, followed by a practically normal chart. Her pulse was never above 100. I saw her a short time ago. She was well, and had a remarkably healthy and fine son. The baby's initial weight was eight pounds.

Second Operation.—Pelvic measurements same as in 1894. June 25, 1900, prepared for operation. June 26, Cesarean section. Abdomen opened by incision to left of old scar. Uterus delivered through abdominal wound. No adhesions found. Old scar scarcely noticeable. Uterine incision made to left of old incision. One suture found. Child extracted. Placenta and membranes removed. Subcutaneous injection of aseptic ergotine given. Uterus contracted well. Uterine wall closed by a deep and a superficial layer of interrupted silk sutures. Before closing the uterine incision a gauze strip was placed down through cervix into vagina. Abdomen closed by interrupted sutures of silkworm-gut. Only small amount of blood lost. Patient in good condition at end of operation. Gauze strip removed from vagina and cer-

vix six hours after operation. Baby resuscitated without difficulty.

Salt solution Oj

Strychnine sulphate, gr. 1/30   } per rectum ev. 4′

July 1st.—Burn the size of a silver dollar, caused by a heater, on right calf. Treated with Ung. Boraci. Temperature has not been above 100 degrees and dropped to normal on the fourth day Pulse, 80. Patient taking regular nourishment and baby nursing well.

July 10th.—Stitches removed. Wound solid. Patient is making a perfect convalescence. Burn on calf healing slowly.

July 16th.—Sitting up in bed. Baby gaining daily.

July 20th.—Sitting out of bed. Measured for belt. Burn now about size of a five-cent piece. Granulating slowly.

July 28th.—Patient has remained a few days longer on account of burn which is now clean and about as large as a ten-cent piece. She is instructed how to dress it at home. Has been up and about for several days and wearing belt. Has made a good convalescence. Discharged August 12, 1900. Mother well, baby well.

Allusions to Cesarean section repeated six and seven times upon the same woman appear in older writers, and in 1835 Nancrede [6] published an account of a case as having occurred in Louisiana.

Harris,[7] in an article published in 1878, set forth his careful investigation of Nancrede's case and showed it to be a myth. The large number of operations said to have been performed in these instances is undoubtedly due to the natural growth which takes place as a report travels and equally thorough investigation would probably lead to the same results.

In Germany, Michaelis,[8] in 1836, delivered a woman of her fourth living child by Cesarean section, three having been previously delivered in same woman.

Oettler,[9] in 1863, operated himself for the fourth time upon one woman with equally favorable results.

Decoene,[10] in 1852, operated for the fourth time with favorable result.

Various surgeons reported operations successful twice and three times before the days of antisepsis and the uterine suture.

Birnbaum,[11] in 1884, repeated the operation for the fifth time on Frau Rittgen, who unfortunately died of pulmonary embolus on the fifth day after operation. The four last children survived; but the fate of the first was not mentioned.

The first successful case to which we find a reliable reference in medical literature is that of Baqua, of Nantes, who, in 1797, delivered a woman of two living children with an interval of nine years.

In the first in this hemisphere both operations were performed by Dariste on the Island of Martinique in 1804 and 1806.

In the United States the honor seems to belong to Dr. Robert Estep,[27] of Columbia County, Ohio, who operated upon his patient once in 1833 and again in 1834, saving her life although both children were dead.

The case of Gibson, of Philadelphia, published in 1838, is always quoted as being the first in the United States; but the researches of Harris [7] have proved this incorrect.

For summaries previous to 1882 the reader is referred to the collection of 17 cases by Stoltz [12] in 1855, Kukenberg [10] in 1886, Rosenberg [13] in 1891, Abel [14] in 1899, v. Braun Fernwald [15] in 1899, and Wallace in 1902.   (See Ref. to Case 64.)

Kukenberg primarily collected his cases to show the unfortunate results which followed from time to time in pregnancies and labors subsequent to Cesarean section.

A complete list of all the cases which have occurred in the United States, in so far as it is possible to glean them from medical literature, will be found at the end.

The table of references which follows the present article includes all cases published since 1882 on which Cesarean section has been performed more than once with the proper methods of uterine suture.

From the above mentioned date we have taken the table of Rosenberg, completed it by adding accounts of subsequent operations on some of his collected cases and annexed those found in medical literature which were not mentioned, or have taken place since its publication.

Pollak (see reference to Case 25), in considering the cases of Cesarean section repeated upon the same person, gives the names of Hubertin, Englestrum, Barjavel, Parravicino, Bonchencourt, and Galowsky, among others, as having operated twice, Mantz three, and Skutsch four times.

Unfortunately, Pollak gives no references, and we have been unable to find them in any other article either in summary or reference, and so are forced to content ourselves with mentioning the names alone. They are not, of course, included in our table.

Of the list of those which occurred in the United States, many

previous to 1882 never were published individually but collected by the correspondence of Harris.[7]

Lungren,[16] in 1881, tabulated the cases on this continent including those of Harris; but in the light of subsequent discoveries we are forced to omit one case from his list, viz., that mentioned above as reported by Nancrede.

Rosenberg, in the article previously mentioned, divided his series into three groups according to the method of performance of operation and reckoned the mortality for each. Those without antisepsis and without uterine suture suffered a maternal mortality of 14 per cent; those with antisepsis and uterine suture, 26⅔ per cent; while among those operated by the Sänger-Leopold method there were no deaths.

Since 1882 we find 167 operations performed by modern methods and with uterine suture on 74 women.

53 women with 2 operations
$\begin{cases} \text{Living children } \ldots\ldots\ldots 94 \\ \text{Dead at delivery} \ldots\ldots\ldots 5 \text{ (twins once)} \\ \text{Result not stated} \ldots\ldots\ldots 7 \end{cases}$

19 women with 3 operations
$\begin{cases} \text{Living children } \ldots\ldots\ldots 49 \\ \text{Dead at delivery} \ldots\ldots\ldots 1 \\ \text{Result not stated} \ldots\ldots\ldots 7 \end{cases}$

2 women with 4 operations
$\begin{cases} \text{Living children } \ldots\ldots\ldots 5 \text{ (twins once)} \\ \text{Not stated } \ldots\ldots\ldots\ldots 4 \end{cases}$

In our series two mothers died; one being moribund when operated and the other dying on the fourth day of peritonitis. The operations have been, with two exceptions, performed for rachitic deformity or justo-minor pelvis. The exceptions mentioned were made necessary by a tumor of the pelvis and atresia of the cervix (Case XX). Both children of Case XVI showed signs of congenital rickets, but no mention of this occurs in any other.

Hernia in the abdominal scar is acknowledged by five operators, and Coe (Case XIII) in the interval between the two sections performed two operations upon his patient for its relief.

Utero-abdominal fistulæ are noted in three cases: The first, as the result of clots in the uterus and physometra. The second appeared seven months after operation, the wound having apparently healed by first intention; while the third was probably the result of an infected suture and persisted after the section, in spite of operations for its relief.

Through the first (Case 9), in the following labor, flowed amniotic fluid as the sinus dilated with each contraction of the uterus; from the second (Case 28), with each menstrual period flowed

menstrual blood—always one day earlier than per vaginam; the third (Case 67) apparently discharged thin pus, although it connected with the uterine cavity, as was proved at the first operation for its cure.

Two of these unfortunate accidents followed the first operation and persisted until they were cured by the second. The third case died of septic peritonitis after an operation undertaken to close the persistent fistula.

The condition of the abdomen regarding adhesions, as determined by the subsequent operations, does not seem to show such a great change from that found in the pre-antiseptic times; although possibly they are less widespread, since in the earlier days healing without severe peritonitis was the exception and not the rule.

The omentum is very often adherent to the uterus and to the abdominal scar; while the intestines themselves are reported as adherent to both in some instances. The adhesion of the uterus to the abdominal wall is very common and may be so extensive that, as happened in Cases 9, 28, 58 and 40, the uterus is incised and the child extracted without opening the peritoneal cavity.

In the case of Michaelis,[8] at the fourth operation the uterus and abdominal wall were so strongly adherent and over such a large area, that the abdominal cavity was not opened at the operation.

Cauwenberg[17] in 1847 delivered a macerated fetus through the opening in the old scar, also von Proel[16] reports one of somewhat the same nature, where the fetus and membranes came forth whole and the woman aside from a small tear into the peritoneal cavity, and a small prolapse of omentum, suffered little harm.

This adhesion of uterus to abdominal wall may account for many of the good results of the repeated sections in the earlier days. In fact this adhesion of uterus to the abdominal wall was recommended by Routh and Everke; but first of all by Michaelis, who pointed out the advantage of such adhesion in the earlier days of the last century.

Olshausen[18] recommended sewing the uterus to the abdominal wall to accomplish this, while Kehrer wiped the uterus and parietal peritoneum with corrosive sublimate 1-100 to bring about the same result; but for a different purpose, viz.: to prevent the leakage of lochia into the abdominal cavity.

The following table shows the relative frequency of the various adhesions, where definitely stated, in our own series:

Omentum adherent { to uterus 16
                 { to abdominal scar..................15

Intestine adherent { to uterus 4
                   { to abdominal scar................. 3

Uterus adherent   to anterior abdominal wall........36

Adhesions are noted in other operations, but are too indefinite to notice except in two cases where the omentum, intestines, uterus and abdominal wall were fused by very extensive adhesions.

No adhesions were found at three operations, and it is distinctly stated in five cases that the uterus was not connected with the abdominal wall.

Abel showed in his series that the attachment of the uterus to the anterior abdominal wall varied with the healing of the wound.

	Strong.	Loose.	None.
First intention	4	8	6
Stitch abscess	2	3	0
General wound infection...........	4	1	0

He also found that the situation of the placenta, whether anterior or posterior, played no part in the production of adhesion between uterus and abdominal wall.

The attachment of uterus to abdominal wall may sometimes make trouble in succeeding pregnancies either by causing pain, or, as in a case reported by Abel,[19] where the uterus ruptured at six months as the result of a firm adhesion.

The uterine scar, like cicatrices in other parts of the body, seems prone to stretch at times with succeeding pregnancies, especially in those operated upon by the methods previous to the use of sutures.

Krukenberg[10] gives seven instances of rupture taking place in the old scar, five where the scar became very thin but did not actually rupture and three with a rupture near the old scar, but apparently not connected with it.

Harris,[27] among fifteen American cases which became pregnant after Cesarean section, found three in whom rupture occurred; one being saved by laparotomy.

The above accidents all took place in women operated upon by the old methods.

Our own series contains five cases (Nos. 3, 14, 22, 35, 49), where the scar was weak.

In Cases 3 and 14 the scar was thin; in case 35 it bulged forward like a hernia; in Case 22 it was so delicate that it broke on touch at the time of operation, while in Case 49 it ruptured during slight exertion and the woman was saved with difficulty. The twins were found dead in the abdominal cavity with membranes unruptured.

The scar is reported in sixteen, our cases included in the number, as being seen, usually as a white line.

In five instances it is definitely stated that it could not be found. This was the case in one of our own operations.

Korn states that at an operation two years after the first section, the uterine wall was half as thick as normal.

Skutsch, after about the same interval found the wall unthinned, and with him our own observations would agree, as well as a subsequent statement of Korn concerning another case, and the report from Case 25. In a number of instances the uterine wall is reported thin, but nothing said about the scar.

From the microscopic examination in Case 35 it would seem that faulty suturing or poor suture material must be held accountable for most failures to obtain firm union of the walls.

Braun-Fernwald[15] states that in his examinations of the uterine wall with the microscope no scar could be found in the muscular tissue of the uterus. He also considers that the method of suture makes no difference in adhesion of the uterus to the abdominal wall. He considers the proper degree of tension for the uterine sutures the chief point.

The question as to what becomes of the suture material is an interesting one.

At the second operation in Case 4, all the silver sutures were removed which had been inserted five years before. In Case 5 they were seen shining under the peritoneum, while in many others they have entirely disappeared. Some have been found in the abdominal parietes, having cut out of the uterus and remained clinging to the abdominal wall until encysted.

Silk, for the most part, disappears.

In Case 5, after an interval of five years, nothing could be found of the thirty silk sutures introduced at the previous operation, but the silver sutures were encysted. In Case 29 three sutures were found after nine years.

Abel[14] has found the whole row of silk sutures under the peritoneum at a subsequent section; but in most instances none could

be discovered. While many are absorbed, there are certain other ways by which they may be gotten rid of.

Case 55 in his list passed two silk sutures in the urine, while another reported by E. Martin voided them by rectum.

Elischer[20] has reported them as discharged from the uterus.

Abel also reports nine cases where the silk sutures were discharged through the abdominal wound.

In one case the fistula formed one year after the operation, and after discharging a number of sutures persisted for three years until the next section.

In four instances there was no pus formation, while in five there was suppuration of the wound. We cannot help feeling that where the healing was apparently by first intention, the infection may have come from the cavity of the uterus through the too deep placing of a suture.

The results from the use of catgut are not so good.

A. Martin reports a case in which eighteen hours after operation the catgut sutures were united and the wound gaping; also Zweifel, Spaeth and Birnbaum.

Sänger[21] enumerated several cases of the same nature in a paper read in 1891. Still, some of the German operators use silk for deep and catgut for superficial sutures, and Olshausen reports twenty-nine successful cases sutured with catgut alone.

To a certain extent suture material is a matter of personal preference and the skill of one operator with silver wire may enable him to obtain good results with a material which does not give so good results in the hands of others.

Thus Schauta reported fifteen cases sutured with silver wire with fifteen recoveries.

Broadly speaking, however, silk seems to be the material best suited to the greatest number and as most observers have found it to be absorbed or discarded from the body in some way, there can be no objection to its use.

We have seen that the mortality of our list is small and in uninfected cases and without waiting until both mother and child are in poor condition, the prognosis is good for the life of both. At the same time the question of the dangers of repeated pregnancy, rupture of the scar, abdominal complications from adhesions and also the dangers of repeated operation, cannot be entirely overlooked.

In addition to all these must come the possible chances of taking away the ability to carry on household duties which devolve

upon women of the walk in life from which these patients generally come.

Hence, the question naturally arises concerning the propriety of rendering the woman incapable of future conception at the time of operation. This, each operator must decide for himself, unless the patient wishes the chance of repeated pregnancy.

The question of danger to life under modern methods is answered in part by the figures of mortality.

The effect upon their future usefulness as members of the family, according to the table by Abel,[14] is not materially affected. In fact he found that after a second operation the pain and discomfort were no greater, and recovery was more rapid than after the first.

	Light Work.		Heavy Labor.	
	1st Intention.	Suppuration.	1st Intention.	Suppuration.
After 1st Section	6 wks......9		2¾ mos.	5 mos.
After 2d Section	4 wks......6		2 mos.	3½ mos.

Whether this is entirely true as applied to our population in this country seems to us somewhat doubtful, but our figures are too small to tell.

When we have decided on our duty to our patients in the matter of sterilization how shall it be carried out with the least danger to them and yet be certain in its results?

The simplest method would seem to be the ligation of the tubes, the cutting of a section from them between double ligatures; or the removal of the tubes entire.

Burrage of Boston,[22] reports a case in which both tubes were removed and one ovary and yet the woman became pregnant twice afterward.

Gordon[23] of Portland, reports two cases of pregnancy after double salpingo-oöphorectomy and Sutton[24] that of a woman who after the same operation bore two children. Battlehner[20] reports a similar case, and Cases 45 and 59 in our series are of the same category.

Falaschi[25] (Case 10), also Fritsch ligated the tubes to prevent pregnancy, but without success. Both women became pregnant; that of Falaschi after six months; that of Fritsch after three years.

Crimail[26] cut the tubes between double ligatures without success in avoiding pregnancy.

Enough cases have been cited to show that the patient, after all these various methods, may not only become pregnant, but in

the narrowing of the tube lumen may even run the risk of extra-uterine pregnancy.

To obviate these difficulties various methods have been suggested.

Zweifel covered the uterine end of the tube with peritoneum.

Abel remarks that the wedge-shaped excision of the isthmus would make the operation much more certain; but unfortunately this is just what was done in the case reported by Burrage, which was cited above, and yet the woman was twice pregnant after the operation.

The only sure method of preventing pregnancy is by complete hysterectomy; but by cutting the tube, bringing the cut end underneath the peritoneum and suturing this over the tube, we may perhaps, as proposed by several writers, come as near the solution of the problem as is possible without total hysterectomy.

We cannot dip into the moral aspects of the controversy here, but the diverse opinions will be found fully aired in many of the French and German writers, particularly at the conclusion of the article by Abel to which we have previously referred.

Note.—Since the above was written Dr. C. M. Green read a paper at the meeting of the American Medical Association in Washington, in 1903, which gives the results at the Boston Lying-in Hospital.

1. Archiv. f. Gynäk., B. XXVI, S. 230.
                    B. XVIII, S. 152.
                    B. XXX, S. 328.
                    B. XXXIII. S. 224.
2. Archiv. f. Gynäk., B. LVI, Hft. I.
3. Archiv. f. Gynäk., B. LIX, S. 345 et seq.
4. Zeitschrift f. Geburtshülfte, 1897, B. 37, S. 537.
5. Abel, Med. Gesellsch. z. Leipzig, 10.1.99.
6. American Journal Med. Sciences, 1835, Vol. XVI, p. 347.
7. American Journal Med. Sciences, 1878, Vol. LXXVI, p. 68.
8. Schmidt's Jahrbuch, B. XIII, S. 142.
9. Manual of Midwifery, Schroeder, p. 204, 1873, English Edit.
10. Archiv. f. Gynäk., 1886, B. XXVIII, S. 421 et seq.
11. Archiv. f. Gynäk., 1885, B. XXV, S. 422.
12. Monatsschrift f. Geburtskunde, 1855, B. VI, S. 182.
13. American Journal Obstetrics, 1891, Vol. XXIV, p. 1178.
14. Archiv. f. Gynäk., 1899, B. LVIII, S. 347.
15. Archiv. f. Gynäk., 1899, Bd. LIX, S. 320 et seq.
16. American Journal Obstetrics, 1881, Vol. XIV, p. 87.
17. Neue Zeitschrift f. Geburtskunde, 1847.
18. Archiv. f. Gynäk., 1877 B. XII, S. 351.

19. Abel, Med. Gesellschaft z. Leipzig, 10.1.99.
20. Verhandlung d. VII, Gynäk. Vers., S. 136.
21. Centralblatt f. Gynäk., 1891, B. XV, S. 727.
22. Medical News, New York, May 13, 1901.
23. Centralblatt f. Gynäk., 1897, XXI—143.
24. Centralblatt f. Gynäk., 1897, XXI—143.
25. Centralblatt f. Gynäk., 1892, B. XVI, S. 774.
26. Centralblatt f. Gynäk., 1892, S. 63.
27. American Journal Med. Sciences, 1878, Vol. 75, p. 313 et seq.

REFERENCES TO CASES.

1. { Nederland Tydschr. von Verloostkunde en Gyn., Vol. I.
   { Centralblatt f. Gynäk, 1896, B., XX, S. 554.

2. { Archiv f. Gynäk, B. XXXIV, S., 134.
   { Kaiserschnitt nach dem conservirenden Methode bei ein und dem-
   {   selben Person zum zweiten, dritten und vierten Male wieder-
   {   holt. Kwasniewski, Inaug. Diss., Jena, 1894.

3. { "Der Kaiserschnitt," by Prof. G. Leopold.
   { Jour. der Dresdener Klinik.

4. Jour. d. Dresdener Klinik.

5. { Jour. d. Dresdener Klinik.
   { Archiv. f. Gynäk., 1898, B. LVI, S. 10.

6. { Jour. d. Dresdener Klinik.
   { Verhandlung d. Deutsche Gesellsch. f. Gynäk, 1891, S. 380.

7. Archiv. f. Gynäk., B. XXX and XXXVII.

8. Annales de Gyn. et Obstet., Vol. XXXV, p. 372.

9. Am. Jour. Obstet., 1890-91.

10. { Centralblatt f. Gynäk., 1892, S. 775.
    { Raccoglitore med., April 20, 1892.

11. Medical Record, N. Y., 1892, Vol. XLI, p. 538. Reported by Hag-
        gart.

12. { Deutsche Med. Wochenschr., 1891, No. 41, S. 1.
    { Centralblatt f. Gynäk., 1893, S. 777.

13. { Internat. Clinics, Philadelphia, 1895, 5th Section, Vol. III, p. 289.
    { N. Y. Polyclinic, 1894, Vol. IV, p. 35.

14. Jour. Am. Med. Assoc., 1901, Vol. XXXVI, p. 183.

15. { Ann. de Gynéc., 1894, Vol. XLII, p. 98.
    { Bull. Acad. de Méd., Paris, 1894, 3 S., Vol. XXXII, p. 16.

16.   "   "   "   "   "   "   "   "   "   "

17. { Centralblatt f. Gynäk., 1893, S. 46.
    {   "   "   " 1895, No. 4.

18. Verhandl. d. Deutsche Gesellsch. f. Gynäk., 1895, B. VI, S. 675.

19. { Gynäk. Tagesfrage, B. I. S. 7.
    { Conf. A. Hoffmann, Sechs Fälle v. wiederholter Laparotomie bei
    {   derselben Frau Gieszen, 1894. Inaug. Diss.

20. Fünz. Beitrag. a. d., Geb. d. Ges. Med. Festschrift d. Ver. d. Aerzte
        d. Regensburgbz., Wiesbaden, 1894, S. 535.

21. Medycyna Warszawa, 1898, XXVI, p. 313-318.

22. Dublin Med. Journal, 1895, Vol. XCIX, p. 270.

23. See Ref. to Case 19.

24.   Centralblatt f. Gynäk., 1898, B. XXII, S. 489.
25.   "   "   "   1899, B. XXIII, S. 401.
26.   "   "   "   1899, B. XXIII, S. 801.
27.   Am. Jour. Obstet., 1898, Vol. XXXVII, p. 321.
28.   Med. Record, 1899, Vol. LVI, p. 172.
29. { Centralblatt f. Gynäk., 1900, B. XXIV, S. 713.
      Ein Fall v. Secto caesarea recidiva. Inaug. Diss. Wolters, Gronin-
          gen, 1900.
30.   Monatsschrift f. Geburt. u. Gynäk., 1900, B. XII, S. 600.
31.   "   "   "   "   "   1901, B. XIII, S. 326.
32.   "   "   "   "   "   1901, B. XIII, S. 456.
33.   Archiv. f. Gynäk., 1899, B. LVIII, S. 347.
34.   "   "   "   "   "   "   "   "
35.   "   "   "   "   "   "   "   "
36.   "   "   "   "   "   "   "   "
37.   "   "   "   "   "   "   "   "
38.   "   "   "   "   "   "   "   "
39.   "   "   "   "   "   "   "   "
40.   "   "   "   "   "   "   "   "
41.   "   "   "   "   "   "   "   "
42.   "   "   "   "   "   "   "   "
43.   "   "   "   "   "   "   "   "
44.   "   "   "   "   "   "   "   "
45.   "   "   "   "   "   "   "   "
46.   "   "   "   "   "   "   "   "
47.   "   "   "   "   "   "   "   "
48.   Presse Médicale, Paris, 1896, p. cc. XXII.
49.   Monatsschrift f. Geburt. u. Gynäk., B. VI, S. 192.
50.   Archiv. f. Gynak., 1899, B. LIX, S. 344.
51.   "   "   "   "   "   "   "   "
52.   "   "   "   "   "   "   "   "
53.   Ueber Sectio caesarea conservativa beim engem Pelvis. Hinschius.
          Inaug. Diss., Berlin, 1898.
54.   See Ref. case 53.
55.   Archiv. f. Gynäk., 1899, B. LIX, S. 344.
56.   See Ref. to case 55.
57.   Der Kaiserschnitt beim engem Becken, Braun-Fernwald, Wien,
          1894, Thesis.
58. { Lancet, London, 1901, Vol. I, p. 161.
      Trans. North of Eng. Obstet. and Gyn. Soc., 1901, p. 65.
59.   Jour. of Obstet. and Gyn. of the British Empire, 1902, p. 138.
60.   Monatsschrift f. Geburt u. Gynäk., 1896, B. III, S. 160.
61.   Casuistik von mehrfach an denselben Person vorgenommener Sectio
          caesarea. Inaug. Diss., Freiberg, 1899. A. Frank.
62.   See Ref. to case 57.
63.   Archiv. f. Gynäk., 1898, B. LVI, S. 14 (No. 70).
64.   Trans. North of Eng. Obstet. and Gyn. Soc., 1902, p. 33.
65.   See Ref. to case 61—also Wiener Med. Presse, 1890, No. 26.
66.   Münchener Med. Wochenschrift, 1898, S. 661.
67. { Archiv. f. Gynäk., 1899, B. LVII, S. 543.
      Centralblatt f. Gynäk., 1899.
68.   Liverpool Med. and Chirurg. Journal, Sept., 1902.
69.   Monatsschrift f. Geburt. und Gynäk., 1901, B. XIII, S. 31.
70.   See Ref. to case 57.
71.   Jour. d'accouch., 1902, No. V.
72.   Centralblatt f. Gynäk., 1902, No. 40, S. 1055.

                CASES NOT NOTED IN PREVIOUS ARTICLES.
1.   Revue Méd. Francais et Etrang., 1855, Vol. I, p. 333.
2.   Bulletin de la Soc. de Méd. et Chir. de la Rochelle, 1887, 4th Series,
          No. 6, p. 95.
3.   Bulletin de la Soc. des Méd. et Naturalistes de Jassy, Jan., 1890, p. 7.

LIST OF OPERATIONS IN UNITED STATES.

DATE	LOCALITY	OPERATOR	AGE	COLOR	CAUSE OF DIFFICULTY	CONJ. DIAM.	RESULT TO WOMAN	RESULT TO CHILD
1833	Columbia Co., O.	Dr. Robert Estep	23	Br'net	Def. pelvis	Under 2 in.	Recovered	Dead
1834	"		24	White	"	"	"	"
1835	Philadelphia, Pa.	Dr. Thomas Gibson	26	"	"	2 in.	"	Lived
1837	"		28		"	"	"	"
1846	Thibodeux Co., La.	Dr. J. A. Scudday	30	Black	Exostosis of sacrum	.....		Born feeble, soon died
1849	"	"	33	"	"			Lived
1852	Alstibeeha, Miss.	Dr. W. H. Merimar	24	"	Def. pelvis			Dead
1854	"	"	26	"	"			Lived
1855	"	"	27	"	"	?		"
1861	Hamburg, Ark.	Dr. Isaac J. Newton	35	"	"	?		"
1863	"	Dr. Robert M. Dickinson	37	"	"	?		"
1856	Richmond, Va.	Dr. Charles L. Mills	23	"	"	?		Dead
1867	"	"	34	"	"	?		Lived
May 8, 1875	Toledo, O.	Dr. S. S. Lungren	29	White	"	2¼ in.		"
May 22, 1880	"	"	34	"	"		Died	"
April 17, 1888	Philadelphia, Pa.	Dr. Kelly	26	"	"	5.5 cm.	Recovered	Lived, d. after 7 d.
April 27, 1890	"	Dr. Noble	28	"	"		Died	" " few h.
Dec. 16, 1886		Dr. Biggar	34	"	"	Not stated	Recovered	Lived
Feb. 17, 1892		"	40	"	"	"	Recovered and well	"
Jan. 12, 1891	New York	Dr. Coe	22	"	"	3¼ in.	Recovered	"
Sumner, 1894	"	"	25	"	"	"	"	"
Aug. 4, 1893	Mt. Etna, Iowa	Dr. Coakley	30	"	"	2½ in.	"	"
July 27, 1895	"	"	32	"	"		"	"
March 3, 1900	"	"	37	"	"		"	"
Sept. 28, 1892	Philadelphia, Pa.	Dr. Noble	25	"	"	6.75 cm.	"	"
Aug. 12, 1897	"	Dr. Boyd	30	"	"		"	"
1898		Operator not stated		"	"		"	"
Nov. 15, 1894	Paterson, N. J.	Operator not stated	22	"	"		"	"
Jan. 26, 1902	Boston, Mass.	Dr. Geo. Haven	28	"	"	3½ in.	"	"
July 15, 1894	" "	"	30	"	"		"	"
June 26, 1900	" "	"	36	"	"	2⅝ in.	"	"

THE WORK OF DOWNES' ELECTRO-THERMIC ANGIOTRIBE IN
TWO ABDOMINAL AND TWO VAGINAL HYSTERECTOMIES;
IN ONE LARGE OVARIAN CYST COMPLICATING A SIX
MONTHS' PREGNANCY; IN THREE BILATERAL
SALPINGO-OOPHORECTOMIES; IN ONE CASE
OF CARCINOMA MAMMÆ; IN ONE OF
EPITHELIOMA OF THE EXTERNAL
GENITALIA AND IN TWO CASES
OF EXTERNAL HEMORRHOIDS.

BY

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CASE I.—*Abdominal hysterectomy for carcinoma involving
cervix and body of the uterus and tissue adjacent to the cervix.*

Mrs. X., aet. 48. Referred to me by Dr. Topmoeller. Ceased
to menstruate at the age of 46. General condition fair. Very
anemic. Cervix had sloughed away entirely. Corporeal cavity
filled with cancerous mass. Roof of vagina around the cervix
indurated. Mobility of uterus decidedly impaired. Hemorrhage
almost continuous and accompanied by very foul odor. Known
duration of disease, about six months.

Feb. 11, 1903. Abdominal hysterectomy with the electro-
thermic angiotribe. Vaginal hysterectomy was beyond considera-
tion. After a thorough curettment and gauze-packing of the
uterine cavity, Dr. Downes, the author of the instrument, per-
formed an abdominal hysterectomy as follows: The abdomen was
opened in the usual manner. The fundus of the uterus was then
seized with a pair of Péan volsellum forceps and elevated as far
as possible. The left broad ligament was first detached by apply-
ing the small-sized angiotribe some distance below the ovary and
tube, from without inward so that the tip of the blades came in
close contact with the uterus at a point just above the pelvic
floor. The boiling of tissues began in fifteen seconds from the
time the current was turned on and was continued for about
twenty to twenty-five seconds. A long hemostatic forceps was
next placed from above downward, alongside the uterus over the
broad ligament, to prevent bleeding. This done the ligament was
severed with the knife close to the angiotribe, which was then
removed. The right broad ligament was treated in the same way.
After separating the bladder from the uterus, Dr. Downes sev-
ered the rest of the uterus and the adjacent tissues involved by

the disease with the electro-cautery-knife. The uterine arteries bled freely when cut, but the electro-thermic angiotribe was promptly applied and the hemorrhage successfully arrested by cooking the end of the exposed vessels. The oozing from the remaining surface of the wound was trifling and quickly stopped by a heavy wick-tampon extending from the roof of the pelvic floor through the vagina to the vulva. The abdomen was closed by a three-row catgut suture and the patient placed in bed not much the worse for the operation. She rallied promptly and for one week there was a marked and steady improvement in her condition. On the fifth day the gauze-tampon was entirely taken away. There was absolutely no hemorrhage after the operation, or upon the withdrawal of the gauze. With the exception of a good sized stitch-hole abscess (which closed within ten days) there was not the slightest difficulty experienced from, or within, the field of the operation. After the ninth day the patient showed symptoms of mental aberration. She talked incoherently, was very restless (would get out of bed), lost her appetite, and the face became pale and pinched. A leak in the bladder manifested itself on the eighth day after the operation, but closed again almost entirely within one week. Notwithstanding the absence of hemorrhage, continued stimulation, careful feeding per orem and rectum, and an earnest but unsuccessful effort to secure sleep, the patient did not improve. The wound in the abdomen had healed completely, and the vaginal wound had contracted to the size and shape of a small almond; it was free from irritation and painless to the touch. Never before had I seen a vaginal wound, following a total hysterectomy for cancer, look as clean and well as this one so early after the operation. But in spite of all our efforts to avoid a fatal issue, the patient vividly portrayed signs of rapid loss of vitality. The moments of mental clearness grew less every day. On the morning of the fourteenth day, a copious hemorrhage occurred from the vaginal wound. The nurse thought it amounted to about one quart. It ceased spontaneously as suddenly as it came on, and did not recur. The effect upon the patient was profound, her condition bordering on collapse. Lowering the head, hypodermoclysis and stimulation availed nothing and the patient died of asthenia on the twenty-fifth day after the operation and on the eleventh after the hemorrhage. The operation was, undoubtedly, protracted and severe. It was followed by a very light shock only and this was succeeded by a prompt and surprising improvement in the patient's condition. At

the end of the first week everything looked bright and promising, and the possibility of an early death was farthest from our thought.

CASE II.—*Vaginal pan-hysterectomy for carcinoma colli involving the entire cervix, but none of the surrounding structures.*

Mrs. T., aet. 58. Referred to me by Dr. Greiwe. She ceased to menstruate fifteen years ago and is the mother of four children. Family history good. She is very anemic and much emaciated, showing the effects of a recent and protracted illness, grippe followed by pneumonia. Duration of disease, not definitely known; but, evidently, it did not exist very long judging from the extent of the disease and the absence of symptoms of its presence up to about two weeks before she was sent to me.

March 28, 1903. Vaginal hysterectomy with electro-cautery-knife and angiotribe. The cervix was separated from its attachment by making first a circular incision with the cautery-knife around the portio vaginalis; second, by tearing off the loose tissue from the uterus with gauze-sponge and fingers, until the uterine arteries were sufficiently exposed for recognition. The peritoneal cavity was then opened anteriorly and posteriorly and the electro-thermic angiotribe applied successively to both broad ligaments. Boiling of the tissues began within fifteen seconds after current was turned on and was continued for about twenty seconds. Before removing the angiotribe, the ligaments were cut on its uterine side. The instrument had to be applied twice on each side in order to include the entire depth of the broad ligaments. The operation was quickly done; but some time was consumed in sewing together the edges of the peritoneum. This done, a gauze drain was introduced and patient taken to her bed. Of the seventy-five vaginal hysterectomies I have been called upon to perform during the past twelve years, this was the least difficult and the most satisfactory in its immediate results. This patient has been able to evacuate both bladder and rectum upon the commode, from the fourth day after the operation and before the complete removal of the first gauze-tampon within the vagina. Patient was discharged April 19th.

CASE III.—*Vaginal pan-hysterectomy for carcinoma uteri. Portio vaginalis almost entirely sloughed off; adjacent structures implicated; mobility of uterus considerably curtailed.*

Mrs. S., aet. 60; 5-para. Referred to me by Dr. Buttemiller. Menopause occurred at the age of 45. Family history and general health good. Quite fleshy. No cachexia.

Operation, performed April 4th, 1903, was exceedingly diffi-
cult and prolonged on account of fixation of the uterus, extension
of the disease into the vagina and both broad ligaments, and the
friable condition of the diseased organ. The uterus and its ad-
nexa were removed by morcellation; the diseased vaginal portion
by the cautery knife; the broad ligaments, including the uterine
and ovarian arteries were clamped outside the diseased tissue with
the electro-thermic angiotribe, then boiled for twenty-five sec-
onds. The pelvic peritoneal wound was left open and the field
of operation packed sufficiently to keep the intestines from fall-
ing down. Duration of operation, one hour. After-treatment as
usual. Patient rallied promptly from the effects of the operation.
Recovery almost complete at this time (April 20th).

CASE IV.—*Abdominal hysterectomy for dysmenorrhea; dis-
eased ovaries and tubes, retroflexed and fixed uterus.*

Mrs. Mc., aet. 25. Referred to me by Dr. Buschmann. Two
children. General condition and family history good. Duration
of dysmenorrhea between two and three years. Suffering before
and during menstruation intense; never free from pain during
the interval. Examination revealed a partially solid and semi-
fluctuant, irregular mass in the pelvic cavity. It was correctly
diagnosticated as above.

Feb. 25th, 1903, the abdomen was opened and both ovaries and
tubes were removed with the aid of the electro-thermic angiotribe
after all the adhesions had been severed and the uterus liberated
from its abnormal position. In this case the angiotribe was first
applied to the base, then to the uterine side of the ligament (in-
clusive of the round ligament). It was noticed that this left the
uterus without support. Feeling certain that, under the circum-
stances, the organ would drop back into the cul-de-sac of Douglas
and thus continue to trouble the patient in the future, I amputated
the womb above the vagina. Bleeding from both uterine arteries
was controlled by boiling the vessels within the bite of the electro-
thermic forceps. The peritoneum was sewed over the stump with
fine catgut. Abdomen was closed in the usual manner. Except-
ing a stitch-hole abscess, the patient made a splendid recovery
and was discharged, a well woman, five weeks after the operation.

CASE V.—*Large ovarian cyst complicating a six months' preg-
nancy.*

Mrs. Th. (referred to me by Drs. Buttemiller and Webb), is
35 years old, pregnant for the first time. Operation, March 19th.
The cyst as large as the six months' uterus, orginated in the left

ovary but was lying behind, above and to the right of the uterus; the latter was crowded down and to the left. The pedicle was fully eight inches in length, twisted and about one inch in diameter. The tumor had a greenish, dark-brown color. It appeared to be gangrenous and was adherent to the uterus posteriorly, above and to the right; also to the under surface of the liver, the omentum and anterior abdominal wall in the right hypochondriac region. The adhesions were easily broken up; but, to remove the cyst, the abdominal wound had to be extended considerably above the umbilicus. The incision was 22 cm. in length. The large electro-thermic angiotribe was applied to the base of the broad ligament after the pedicle had been untwisted. As the ligament, which constituted the pedicle, was very thick and broad, the angiotribe had to be applied twice. No ligature was used. Hemostasis was perfect. Patient made an excellent recovery and did not abort. She is now in the eighth month of pregnancy.

CASE VI.—*Salpingo-oophorectomy bilateralis, for interstitial salpingitis and cystic degeneration of both ovaries.*

Mrs. P. (referred to me by Dr. Crissler of Ludlow, Ky.), aet. 20. Dysmennorhea excessive; constant pains in the back. Very feeble. Mother of two children. Family history fair. Operation, March 21st, 1903. In this case, after liberating the tubes and ovaries from dense and numerous adhesions, I was able to apply the electro-thermic angiotribe (2nd size) to the base of the entire broad ligament on both sides. The uterus was not displaced and after the tubes and ovaries had been removed, the two bands of cooked tissues (the remains of the broad ligament) only added to the support of the organ. No ligatures. She made a prompt recovery.

CASE VII.—*Large ovarian abscess on the right side. Bilateral pyosalpingitis.*

Mrs. B. (referred to me by Dr. Maguire), aet. 23. Nullipara. Physical condition and family history good. March 28th, 1903, celiotomy. Adhesions enormous and very firm. Careful enucleation prevented rupture of pus cavities. The electro-thermic angiotribe No. 2 was employed upon both ligaments. No ligatures. Hemostasis complete. Recovery prompt and seemingly perfect at this time, April 20th.

CASE VIII.—*Bilateral hydrosalpinx and cystic ovaries.*

Mrs. W., aet. 25. Primipara. Small stature, feeble in health, much emaciated and very anemic. Severe dysmenorrhea. Pain in back and groin constant. Family history shows tendency to

tuberculosis.   April 15th, 1903, celiotomy.   Both tubes and ovaries removed with aid of electro-thermic angiotribe.   No ligatures.   Hemostasis perfect.   No untoward symptoms up to this time.   Abdominal sutures removed to-day, April 20th.

CASE IX.—*Carcinoma of the breast.*

Mrs. B., wife of physician, aet. 43.   Known duration of disease, two weeks.   Pain slight.   General health excellent.   Family history good.   March 8th, 1903, extirpation of entire breast and lymph nodes.   Halstead operation.   The tumor within breast was only two inches in diameter and proved to be scirrhus.   There was a distinct chain of infected nodes extending into the axilla, necessitating the removal of the pectoralis major and minor muscles.   Hemorrhage was at first arrested by the use of ordinary hemostatic forceps.   After the removal of all the diseased tissues had been completed, the bleeding vessels were treated with the electro-thermic angiotribe (small size).   Not a single ligature was employed.   Hemostasis perfect.   The skin was brought together with a continuous catgut suture.   Union occurred by first intention.   Patient left hospital for her home in Virginia on the seventeenth day after the operation.

CASE X.—*Epithelioma involving the lower third of the mons veneris, both labia majora and minora, the clitoris, meatus urinarius and upper two-thirds of the vestibule. Fourchette, vagina and perineum free from the disease but the inguinal lymph nodes implicated, especially on the left side.*

Miss A., aet. 62 (sent to me by a "cancer specialist").   Known duration of disease about one year.   Patient had been X-rayed for two months and rendered much worse.   March 4th, 1903, the whole mass was completely removed with the sole aid of the small size electro-thermic angiotribe and without the loss of one drop of blood.   Operation: Patient in the lithotomy position and under chloroform.   A small incision was first made through the healthy skin one-quarter of an inch below the left labium majus and the same distance to the left of the median line of the perineum.   One blade of the instrument was then inserted into this incision and pushed, full length, into the healthy subcutaneous fat in a direction upward and to the left of the tumor.   The angiotribe was then closed and the tissue within its grasp boiled for twenty seconds.   After cutting off the tissue on the side of the clamp next to the disease, the instrument was released to be reapplied first higher up, then across the mons veneris and so on down upon the right side to a point corresponding to the one on

the other side where we began. This maneuver was continued from without inward, always operating within the healthy tissue, until all the external genitalia, including the lower third of the urethra had been removed. The perineum and posterior margin of the vagina were not disturbed. At first I intended to stitch the urethral mucosa to its surroundings; but as the wound had to heal by granulation this was not done, as I felt sure the contraction of the cicatrix would prevent occlusion; and so it did. The result was eminently satisfactory. There was no evidence of a return of the disease when she left the hospital six weeks after the operation. The lymph nodes in the groins had diminished in size and gave her no pain. She positively refused to have them removed. The operation was formidable, but certainly very satisfactory in its immediate results. Without the Downes angiotribe, the operation would have been exceedingly difficult and bloody if not impossible.

CASES XI and XII.—The angiotribe was also used upon two cases of external hemorrhoids with the utmost satisfaction. There was no hemorrhage from the tissues clamped and boiled. The only blood lost was a few drops from the torn mucous membrane in consequence of the dilatation of the sphincter ani muscle.

Remarks.—The principle of Downes' angiotribe is by no means new. Both heat and pressure have been employed singly or together for hemostatic purposes in the past. Before the introduction of the ligature, the hot iron was the chief agent to arrest the flow of blood from bleeding surfaces and vessels. Prolonged pressure by hand and tourniquet, and later by forceps and clamp is familiar to all. Within the more recent past Baker Brown and Thomas Keith employed both pressure (the clamp) and heat (the red-hot poker) in the treatment of ovarian pedicles for the purpose of controlling hemorrhage. The credit for first applying the heat-and-pressure hemostasis in the form of an electro-cautery clamp is due to Alexander Skene, of Brooklyn. But Skene's as well as other angiotribes devised since then, showed two defects: first, the instruments were too large and clumsy, limiting their application; second, heating of the clamp was rarely sufficient and often failed completely. The Downes instruments are not so heavy and can be used in almost any region of the body and they never fail to work. It is of especial advantage in removing cancerous growths and, perhaps, in intestinal anastomosis.

From my own experience with the Downes instruments in the cases reported above, I can fully endorse Charles P. Noble, of

Philadelphia, when he says : "Hysterectomy performed by means of the electric cautery clamp possesses all the advantages of any of the methods heretofore in use, and has in addition certain advantages peculiar to it alone.   These especial advantages are : 1. More tissue outside of the uterus is removed (or cooked) than by the classical methods.   2. All the connections of the uterus are either severed through tissue which has been cooked in the bite of the cautery clamp, or these connections have been severed with the electric cautery knife.   In this way the lymphatic vessels are sealed either by the burning or the roasting process.   Whatever the risk of implantation of cancer upon the field of operation may be, by this means it is greatly lessened or done away with.   An exception to the above statements must be noted, in that the attachments of the bladder to the uterus are severed in the usual way.   3. Much less blood is lost than is usual with the classical technique, and a dry, bloodless field is left ofter operation."

Noble's experience with Downes' instruments "embraces four hysterectomies for cancer of the uterus and one hysterectomy for inflammatory disease of both appendages with irregular hemorrhages in a woman approaching the menopause.   *   *   * Three of the cases of cancer made typically good recoveries.   The fourth case died, mainly as a result of an accidental hemorrhage. The fifth case is now progressing toward recovery."

Noble further states that this method of operating "guards against oozing hemorrhage from numerous small vessels, which is so annoying in cancer operations, and it leaves a dry field of operation to be buried under the peritoneal flaps.   The special points in the method which appeal to me are : *First,* by its use, less blood is lost during operation; *second,* the lymphatics are sealed up, thus lessening the risk of septic absorption and implantation of cancer; and *third,* more of the broad ligament is removed than by other operation."

13 Garfield Place.

THE URINARY SECRETION: ITS OBSTETRICAL AND GYNECOLOGICAL CONSIDERATIONS.[1]

BY

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IT is but fair to state that the urinary secretion or excretion of the human body represents, to a reliable degree, and in an unusual manner, the measurement of the changes wrought therein, both in health and in disease. By it we are enabled to determine as much as, or at times more than, in any other way those inroads made by the movements of morbid action. By it may not only the presence, but the intensity, of disease be gauged with a precision, both scientific and suggestive. A more accurate study, in the line of the investigation of disease, is, in this way, strongly indicative of an advancing clinical medicine.

Let us now consider some of the relations of the urinary secretion to obstetrical and gynecological affections.

That the urinary organs—the kidney and the bladder—should be inquired after and their condition and functions be investigated in all obstetrical and gynecological diseases goes almost without saying. For that matter, all rectal diseases co-existing need the same attention. All of the pelvic organs of the female require more or less of an exploration at the same sitting, when thorough gynecological investigations are attempted. So intimately associated are all these intra-pelvic organs and structures that such considerations seem only reasonable.

A qualitative and a quantitative estimate of the urine for albumin, sugar and urea are most important, in order that we may clinically recognize the existence, the degree and the significance of any albuminuria, glycosuria or uremia. Before performing any surgical operation in obstetrical or gynecological practice, unless as a matter of an urgent necessity, it is done hurriedly, it is customary to examine the urine for albumin and sugar, and to test its specific gravity and so to guide our choice of an anesthetic. In obstetric practice this is not often done, but it is a uniform procedure to examine repeatedly the urine of pregnant women. To be forewarned is to be forearmed.

[1]Read before the Cincinnati Obstetrical Society, April, 1903.

That the urine of healthy women is at times albuminous is a well-recognized fact. The mere presence of albumin in the urine, therefore, does not indicate a disease, for it may be a physiological change. The significance of albuminous urine is to be determined by other symptoms. Small but distinct amounts of albumin in the urine do not necessarily present evidences of kidney alterations, but may arise from other causes; changes in the constitution of the blood alter its diffusibility into the renal tubules. Albuminuria is seen at times in anemias, after hearty eating, in some infectious fevers, after prolonged muscular exertion, and in vaso-motor derangements. A hearty meal of beef or eggs will make the urine of a healthy person albuminous for a few hours, possibly longer. Pressure on the renal vessels, and an obstruction, with a slowing of this venous current, is ever a noticeable cause of this condition, occurring in pregnancies, especially the first; it is also, for the same reason, a result of the growth of some uterine and ovarian neoplasms.

It is a matter of uncertainty how frequently albumin is or may be detected in the urine of pregnant women. I think it safe, however, to affirm that it is present at some time or to some degree in not far from 30 per cent. of all pregnancies. Yet a much smaller per cent. of pregnant women do have any serious disturbances in consequence thereof. The clinical significance of an albuminuria of pregnancy is not ascertained by this sign alone, even when it is continuous for some time, unless its presence is accompanied by the microscopical evidences of tube-casts and renal epithelium.

Some significance of the presence of albuminous urine in pregnancy may be viewed in three classes of cases:

(a) Those who have it now for the first time.

(b) Those who have had it at some previous pregnancy, seemingly recovering from the former attack.

(c) Those who have a perpetuation, or rather an aggravation of this morbid condition, resultant on some chronic nephritic affection, previously existing.

Of course, the importance or gravity of each class is inversely in the order mentioned.

The presence of albuminuria in one, probably the first, pregnancy, does not signify that it will surely reappear in any subsequent pregnancy; but once present, a possible return is a cause of more than ordinary anxiety. It is a most natural inference to conclude that the usual association of albuminuria and uremia

exists, at least to some extent; but such a conclusion ought never to be drawn without some appropriate urinalysis. There may be marked albuminuria and little or no uremia, and *vice versa*. There is no well-defined or fixed relation between the symptoms of either, or their quantitative presence.

Albuminuria is at times post-convulsive; hence resultant, not causative. It is relatively commoner during labor than pregnancy, often confined exclusively to that period, and supposed to be due to a reflex-motor spasm of the renal arteries, resulting from uterine contractions, say Tyler Smith and Speigelberg.

Although the quantity of albumin is not a safe guide to the gravity of nephritic lesions, still it is proper and wise to accept the fact that albuminuria is an evidence of an existing abnormal state, the gravity of which is to be determined by accompanying symptoms. An active uremia is extremely rare without some accompanying albuminuria.

As albumin is derived from the blood serum, its presence always means a leak, to some degree, through the kidneys, of nutrient matter. While the only product considered at all constant in uremia is renal casts, still the determination of the quantities of urea, uric acid and other solid ingredients in the urine, although a tedious and complicated task, ought to be done, especially if the specific gravity of the urine is materially reduced.

While albumin is always to be searched for, of greater importance and of the highest clinical significance is the measurement of the elimination from the system of the urinary solids, especially the urea. It is not sufficient to see that the quantity of urine is normal. Estimations of urea should be made in all serious cases, to determine whether the excretion by the kidneys is sufficient.

A very suggestive and instructive paper was read before the American Gynecological Society, in 1895, by Dr. Etheridge, of Chicago, on the subject of renal insufficiency in gynecological cases. No reference is made to organic diseases of the kidneys. He states, and ordinary observation proves, that many gynecological cases suffer from renal insufficiency, which causes numerous symptoms of the digestive and nervous systems, together with menstrual disorders. Such patients are more liable to serious inflammations of the serous and mucous surfaces from slight causes.

Leucorrhea, bronchial or gastric catarrh, backache, headache, general nervousness, insomnia, neuralgia, localized peritonitis, a muddy skin, a cutaneous eruption may, in this way, be but an

effort on the part of nature to establish a compensatory elimination from the body for a defective kidney excretion.

Urea forms by far the greater bulk of the organic output of the kidneys. It furnishes a valuable index of the functional activity of these organs, for many serious forms of nephritic disease are bespoken by its diminished excretion. The human body, according to its size and weight, influenced somewhat by age and habits, should have carried from it, by the kidney sewer, from 500 to 1,000 grains of solids each day. This includes not only urea, but all solids. Proteid foods always increase the output of uric acid, urea and the urates. The following formula for computation is recommended: Multiply the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours, and this product by 1.1; we thus can find the solids excreted. It is true we can never draw definite conclusions from the specific gravity alone, or the quantity of urine voided. A low specific gravity, with a diminished amount of urine, high colored, occurs in nephritis from a lessened excretion of urea (Vierhodt). Should we wish to estimate the amount of urea separately, time and delicate manipulations are needed. There is the advantage, however, in estimating the amount of solids in this way referred to, because any insufficiency unquestionably indicates a deficiency of urea. The above is suggested as a time-saving method of calculation, and is reasonably reliable.

All patients suffering from renal insufficiency are poisoned, and need treatment accordingly. Normal urine is an auto-intoxicant. The urine of two days contains sufficient toxic matter to kill. These toxic properties are owing not to one, but to several constituents. A healthy organism is saved from this lethal intoxication by due action of the kidneys and the liver. Pregnancy, then, attended as it is by a diminishing elimination by the skin, intestines and kidneys, and by an increasing destructive tissue metamorphosis, with an increased production of urea, presents conditions favorable for the development of certain nervous outbreaks. A scanty urine means either that too little fluid is ingested or that the nitrogenous wastes are accumulating.

The presence and the quantity of sugar need estimating also, since diagnostic data of the most important nature hinge on this point alone. Its presence in the urine is as significant of disease as is that of albumin; it means some defect in the brain or liver, or both. True it is that some indigestion, as well as the ingestion of highly saccharine or amylaceous foods will cause the ap-

pearance of sugar in the urine, in the absence of diabetic states; yet diabetic conditions are preceded by similar symptoms. All diabetic patients, because of constitutional derangements, bear surgical operations very poorly. Pruritus pudendi is always a suspicious indication of a diabetic urine. Sugar in the urine during some period of lactation is very common; this is no doubt dietetic in its origin.

It is a uniform obligation, in assuming the care of one suffering from any vesical or urethral disorder, to determine at once the quantity and the quality of the urine excreted—to physically and chemically examine it for the presence and the degree of acidity or any alkalinity.

Experience tells us that not a few cases of chronic urethritis, by no means an uncommon disease in women at and after the menopause, are attributable to some disorder of the urinary fluid. It is well to remember that meats make the urine acid, while milk or a vegetable diet make it neutral or alkaline.

Renal complications after abdominal sections are very serious, much more so than after vaginal or plastic operations. There may be urinary insufficiency, or actual suppression, with its consequences. As a rule, the secretion of the urine is diminished after abdominal operations, and the same continues more or less for days. Personally, I have never seen any permanent or serious consequences from this kidney arrest, although in one old lady, on whom I performed complete hysterectomy for a long-continued procidentia uteri, there was complete suppression for nearly two days. In this case ether had been administered. Chloroform would probably be better under these circumstances if such a mishap could be foreseen. It is important to observe that in nephritis a more or less complete suppression of urine, often followed by uremia and death, may result from the administration of ether for anesthesia. I reported to this society several years since a case in which an attack of acute gonorrhea in a young wife was quickly followed by an extension of the specific inflammation from the vulva to the bladder, ureters and pelves of the kidneys; a complete suppression of urine supervened and death occurred.

A few words now by way of suggestion for treatment. Most gynecological and all obstetrical patients need some dietetic instruction and regulation, in an administration of food, in quantity, quality and method of preparation. A timely use of the principles of dietetics are, in the way of therapeutics, of more value

than is the employment of medicines. Gynecological cases, as a rule, need no restriction as to the use of nitrogenous foods, unless some special complications present themselves. As over-eating and over-drinking of alcoholic beverages, combined with defective muscular exercise, lie at the basis of the nutritional disturbances in the so-called lithemia, we see in this way the ill-results of defective oxidation and faulty metabolism.

The idea that a pregnant woman needs little or no meat, inasmuch as parturition will be easier and safer, is not altogether ill-founded. A diet of vegetables and fruits, with a sparing amount of meat, is all sufficient for the mother and the child. A moderate supply only of the nitrogenous foods, with vegetables and fruits, is called for. If any restrictions need be exercised in the choice of foods, it is that animal foods should be taken in moderation. Attention to the free action of the skin by baths; to the kidney elimination by the liberal use of pure water—at times it may be the Vichy or the Salurian or the lithia waters—are matters of general recognition.

When albumin is leaking through the kidneys, and the same is true if the urine is diabetic, it seems to me rational to reduce the work of these organs by withholding these articles of diet.

The albuminuria of pregnancy calls for a diet of milk, buttermilk, crusty breads, and some of the succulent vegetables, with fruits in season. Milk is eminently diuretic in its action. Its use imposes a minimum amount of kidney eliminative action. The results of its use are remarkably gratifying. The quantity of urine, of urea and of urates increases, while the albumin decreases; the anasarca disappears. Any loss of body weight is prevented by the use of farinaceous foods. Meats and meat extracts are to be abstained from. A return to the ordinary diet may be commenced by partaking of fish, oysters and the white meat of chicken or turkey. Of medicines tincture of chloride of iron is admirable, if anemia co-exists. Continue it for a long time. The strontium salts, by virtue of their pronounced action, are worthy of consideration. Piperazin water has an unquestioned influence in eliminating an excess of uric acid from the blood.

Agents which stimulate the action of the liver and the bowels, aiding nitrogenous metabolism, favor the elmination of the solid wastes through the intestinal canal, relieve the kidneys of much unnecessary labor, and afford an opportunity for them to perform

their legitimate work.   Urea retention is then reduced to a min-
imum.

The question will occasionally arise as to when and under what
circumstances the obstetrician is justified in provoking abortion or
in inducing premature labor, on account of the albuminuria of
pregnancy.   If the albuminuria is constant and quantitatively
progressive, if the patient is seriously threatened with uremic
symptoms, then it becomes our bounden duty to advise active in-
terference.

We all appreciate how valuable the services of the oculist are
in this juncture to detect by repeated examination with the oph-
thalmoscope any beginning lesions of the retina.   Save the life
and the health of the mother.   Her life and her future usefulness
are paramount.   The child in utero frequently is under these con-
ditions quite imperfectly developed, too much so to maintain its
own life if born alive ; probably it will die in utero from uremic
poisoning if left alone.   While most women suffering from the
albuminuria of pregnancy quickly recover after delivery, and
while many children are born alive and well—still it must be ever
remembered that not a few women to-day carry the remnants of
an old albuminuric retinitis, and are blind, or they have damaged
kidneys, which, because of delay, have become irrevocably dis-
eased.

How obvious it is then that a study of the urinary secretion in
individual cases does especially concern us as obstetricians and
gynecologists.

AVONDALE.

THE MECHANISM OF OCCIPITO-POSTERIOR POSITIONS; DOES THE OCCIPUT ROTATE ABOVE OR BELOW THE SPINE OF THE ISCHIUM?[1]

BY

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First we will deal briefly with some points in the anatomy of the pelvis, and what a few authorities say about the rotation and cause of rotation of the occiput. This is King's description of the inclined planes of the pelvis, sometimes spoken of as the inclined planes of the ischium: "In the cavity of the pelvis we find on each side the prominent spine (spinous process) of the ischium and the inclined planes of the ischium, or better known as the inclined planes of the pelvis. The ischial spinous process projects from the posterior border of the body of the bone, about midway down between the highest border of the great sciatic notch above and the lowest margin of the tuberosity of the ischium below. Its tip points at once downward, backward and inward toward the median line, and extending from it forward and upward toward the upper margin of the acetabulum is an indistinct ridge of bone. Now the smooth, slanting internal surface of the ischium in front of and below this indistinct ridge is called the anterior inclined plane of the pelvis. Note its direction: it slants downward, forward and inward toward the median line, so that a rounded body like the fetal head, coming down from above and impinging upon it, would glide at once lower down, more forward, and also inward toward the symphysis pubis. Hence, it is instrumental in

[1] Read before the Kentucky State Medical Association, Louisville, April 23, 1903.

producing what is called 'anterior rotation' in the mechanism of labor."

"The posterior inclined planes of the pelvis are rather difficult to define, but we may map them out as follows : Draw a line on the inner surface of the pelvic cavity from the spinous process of the ischium to the ilio-pectineal eminence. This line divides the anterior from the posterior inclined plane. But as there is only a small remaining surface of the ischium behind the dividing line to form the posterior plane, it is evident that, in the living woman, this plane is completed by the sacro-sciatic ligaments and the muscular structure, etc., that fill up and cover the sacro-sciatic foramina. In fact, the larger portion of the posterior inclined planes is made up of muscles and ligaments. The posterior inclined planes causes the presenting part of the child impinging upon it to rotate downward, backward and inward toward the median line of the sacrum, as this is the direction of the slope of the planes."

The pyriformis muscle, I believe, *begins* the rotation of the occiput forward. It (Gray) "is situated partly within the pelvis at its posterior part, and partly at the back of the hip joint. It arises from the front of the sacrum by three fleshy digitations attached to the portions of bone between the first, second, third and fourth anterior sacral foramina, and also from the grooves leading from the foramina ; a few fibres also arise from the margin of the great sacro-sciatic foramen and from the anterior surface of the great sacro-sciatic ligament. The muscle passes out of the pelvis through the great sacro-sciatic foramen, the upper part of which it fills, and is inserted by a rounded tendon into the upper border of the great trochanter."

So it is my opinion that when the occiput enters the superior strait, in the posterior position, it must meet the resistance of the pyriformis muscle and other soft parts ; this resistance is sufficient to throw the occiput enough to the front of the dividing line that separates the anterior from the posterior inclined plane, for the occiput to fall in front of the spine, the resistance of the tip of the spine being to the posterior part of the occiput, and this resistance of the tip *completes* the rotation of the occiput into the anterior inclined plane. Following the course of this plane the occiput rotates until under the symphysis pubis.

The following is what the authorities say concerning the mechanism of the occipito-posterior positions.

King states that "the object is to get the occiput so low that it will pass below the spine of the ischium to the anterior inclined plane and rotate forward while the forehead is kept high enough to pass above the opposite ischial spine and rotate backward."

Grandin and Jarman in giving the R. O. P. position say: "Flexion being complete when the head reaches the pelvic floor the occiput, in order to get under the pubic arch traverses the right postero-lateral plane and next the right antero-lateral plane. On reaching the pelvic floor, under normal conditions of the pelvis and fetal head, anterior rotation occurs. The route the occiput has to traverse is much longer than in case of the left anterior position, and often the rotation does not occur until the pelvic outlet is reached." Playfair says that several eminent American obstetricians teach that "spontaneous rotation," as a rule, does not begin until the head meets with the resistance from the floor of the pelvis.

According to Hirst, "the cause of the forward rotation of the occiput is the same as it is in anterior positions, namely, whatever portion of the fetal body first strikes the resistance of the pelvic floor, whether it encounters this structure behind or in front of the median transverse line, will be directed forward, inward and downward under the arch of the symphysis. As the occiput is the most dependent part of a vertex presentation, it must first encounter the resistance of the pelvic floor, and must accordingly be rotated in the directions named."

Getchell in his Illustrated Encyclopedia of Obstetrics states that by most of the German obstetricians the influence of the ischial spines and of the smooth pelvic planes in producing rotation is not admitted. They rather refer the change of direction to the increased resistance the head meets from the posterior wall of the the pelvis and from the perineal structures. Whichever part of the head first meets this resistance, which is much greater than that of the anterior part of the pelvis, must necessarily be pressed forward; and as, in the large majority of cases, the posterior fontanelle descends first, it is thus pressed forward until rotation is effected.

Getchell also says that this view has the advantage of account-ing equally well for the rotation in occipito-posterior and in

occipito-anterior positions. He gives the following as the manner in which the occiput is rotated forward in occipito-posterior : "The uterine force transmitted through the vertebral column causes the occiput to descend lower than the sinciput, so that in most cases, in making a vaginal examination, the posterior fontanelle can be readily felt, while the anterior is high up and out of reach. The head is, therefore, extremely flexed, and so descends into the pelvic cavity, until the occiput, being now below the right ischial spine, experiences the resistance of the pelvic floor opposite the right sacro-ischiatic ligament, by which it is directed forward. Pressure continuing, the occiput rotates forward, the forehead passes round the left side of the pelvis and labor is terminated as in the second position." He says further "that the period of labor at which rotation takes place varies. In the majority of cases it does not occur until the head is on the floor of the pelvis, for it is then that resistance is most felt; but the greater the resistance, the sooner will rotation be produced. Hence, it is more likely to occur early when the head is large and the pelvis comparatively small."

If such be the case, where does this rotation of the occiput take place? It is my opinion that it occurs just above the tip of the spine of the ischium, in that part of the true pelvic cavity between the tip of the spine and the brim of the pelvis, which is the widest part of the true pelvic cavity.

The following is what I believe to be the true mechanism of the occipito-posterior positions. In the R. O. P. position the occiput is directed toward the right sacro-iliac synchondrosis, the forehead toward the left acetabulum, the occipito-frontal diameter offering in the right oblique of the pelvis. The occipito-frontal diameter of the head being longer than the right oblique of the pelvis, there is first flexion to allow the head to enter the brim, substituting the sub-occipito-bregmatic diameter of the head for the occipito-frontal. The force of uterine contraction is transmitted through the vertebral column to the short pole of the fetal head, the occiput, and so produces more flexion of the head. The head descends and the occiput, being the most dependent part, meets the resistance of the pyriformis muscle and soft parts as soon as it enters the brim. This resistance in the great majority of cases (about 96 per cent) starts the rotation of the occiput to the front, it rotating away from the point of resistance to that part of the pelvis where it has the least resistance, that is to the right

and forward. This is the beginning of the second step of labor in R. O. P. position with a favorable termination, that is the rotation of the occiput through three-eighths of a circle to the front.

The resistance of the pyriformis muscle and soft parts is sufficient to cause the occiput to fall in front of the dividing line of the two inclined planes, that is a line drawn from the tip of the spine of the ischium to the ilio-pectineal eminence, and in front of the tip of the spine, so the resistance of the tip is back of the occiput and the occiput rotates along the right anterior inclined plane and under the symphysis.

If the resistance of the pyriformis muscle and soft parts is not sufficient to start the rotation of the occiput to the front, then the occiput will pass on down and fall behind the ischial spine and onto the right posterior inclined plane, following its direction, which is downward, backward and inward, to the hollow of the sacrum.

I do not believe that the occiput ever rotates forward after it passes posteriorly to the spine of the ischium. After it gets back of the spine I cannot understand how it will rotate beneath the spine and to the front, or what will cause this rotation.

GYNECOLOGICAL CASES.

From the service of Dr. Frederick William Johnson, Carney and St. Elizabeth's
Hospitals, Boston, Mass.
(Reported by Drs. W. E. Reed and E. K. Paine.)

TWO CASES OF HYDATIDIFORM MOLE.

PALMER FINDLEY (AMERICAN JOURNAL OF OBSTETRICS, March, 1903) says that nothing definite is known of the cause of hydatidiform moles. He says they occur most frequently between the ages of twenty and thirty and are two and one-half times as frequent in multiparæ as in primiparæ. The vascular degeneration of the chorionic villi, resulting from a disturbed maternal circulation, points strongly to a maternal origin. Malignant degeneration of hydatidiform mole occurs in about sixteen per cent of all cases. He asserts that a macroscopic and microscopic examination of discharged vesicles will not determine the benign or malignant character of a mole. The length of time a mole remains in utero does not influence its disposition to become malignant. To avoid malignant degeneration he says our only safeguard lies in early recognition and early removal. He advises curetting the uterus two weeks after the birth of the mole and examining the scrapings for syncytial invasion, and if found in the act of proliferating, hysterectomy should be performed. The patient should be watched for three years after the expulsion of the mole, and if uterine hemorrhage occurs, curetted and the scrapings examined microscopically. All new growths in the vagina and lungs are to be regarded with suspicion. Maternal mortality in hydatidiform mole is twenty-five per cent.

CASE I.—H. C., æt. 47, married, entered Carney Hospital, January 26, 1903. Family history negative. For the past five or six years has had shortness of breath on exertion. No swelling of legs. Area of heart dulness slightly increased. Apex beat at the fifth interspace, half an inch outside the nipple line. Sounds rather weak and irregular. Systolic murmur of a blowing character heard at the apex and transmitted through the axilla to the back. Menstruation began at twelve; regular, every twenty-eight days. Flowed from ten to fourteen days when younger, but for the past eight or ten years has flowed but six or seven days. Soaked twelve

to fourteen napkins. No dysmenorrhea. Last unwell four months ago.

Has a profuse, thick and creamy vaginal discharge, obliging her to wear a napkin. Has had five children, the youngest being five years old. One abortion eight years ago at seven weeks. All her labors were normal. About five weeks ago flowed considerably; flow ceased on going to bed. One week later flowed profusely for about one hour. At this time the vagina was packed. Previous to entering the hospital the vagina had been packed every day. At times there had been slight bearing down pains. For three months, beginning with the second month of pregnancy, there had been persistent nausea with frequent vomiting. When seen by Dr. Johnson in consultation with Dr. Devine it was thought to be a case of placenta previa, or low attachment of the placenta. Owing to the poor condition of her heart it was considered best to send her into the hospital.

A mass symmetrical in outline was easily palpable above the pubes.

From January 26 to February 27 the vagina was packed daily and the patient kept in bed. During this time there was no flowing, the patient gained in weight, and the cardiac disturbance was much improved. As the patient rebelled against staying in bed she was allowed to get up. About noon, February 27, she began to bleed profusely and was at once put to bed. At 4:30 P. M. labor pains began. At 6:30 she was delivered of a mass resembling a portion of placenta, the greater part of which was composed of numerous grape-like cysts. The uterus contracted well.

February 28, the uterus being large, curettage was done. A large amount of blood clot and groups of small cysts were removed. No evidence of a fetus was found. There was no flowing after the curetting, and the patient was discharged, well, March 18.

Report by Dr. George B. McGrath: "Specimen consisted of a flattened mass 15 cm. in diameter, fundamentally stringy, spongy, showing pedicled cluster of thin-walled cysts 3 to 8 mm. in diameter, with clear, viscid vesicles. The mass also contains considerable clot, red and pink. The stringy material is opaque, yellowish-red, with many spots of greater opacity. Diagnosis: Hydatidiform Mole."

Pathologist's report on curettings: "Specimen consists of curettings from the uterus in the form of an abundant mass of clot, with shreds of pale brick-red material and occasional small

pear-shaped cysts. Microscopical examination shows blood clot, with some leucocytes, and in patches, large decidual cells. Diagnosis: Blood clot, decidua."

CASE II.—Mrs. H., æt. 43, married eight years, entered the St. Elizabeth's Hospital February 8, 1903. Two children, youngest four years old. Four miscarriages; last one occurred two years ago, when she was seven months pregnant. Menstruation occurs every twenty-eight days; she flows five days and soaks through four napkins.

October 12, 1902, menstruation occurred at a regular period, flowed the usual amount and stopped after flowing five days. The next flowing began December 22, was only a stain, but persisted daily until some time in January, when she had a severe hemorrhage lasting four or five hours. She was treated for threatened miscarriage. During the following weeks a second hemorrhage occurred, and in the meantime the daily staining began to assume more sizable proportions until February 8, when she entered the hospital. The hemoglobin was forty per cent. It was thought to be a case of extra-uterine pregnancy, but under ether the mass was found to be the enlarged uterus. For a day or two following the examination there were slight uterine pains and some hemorrhage. These subsided under the use of morphine and rest.

On the morning of February 28, when the patient was about to be discharged to go home to await her confinement, severe pains and profuse hemorrhage occurred, and within fifteen minutes she delivered herself of a mass of blood clot and semi-translucent bodies, which on close examination proved to be a hydatidiform mole. The vagina was found full of the same substance, the os was dilated so as to admit the finger. The vagina was tightly packed with sterile gauze. Some hours after the uterus was cleaned out, with only slight hemorrhage. That night at six a chill occurred, and the temperature shot up to 104 degrees. In the morning it came down to 101 degrees, to go up again to 104 degrees.

The uterus was irrigated with six quarts of sterile water that morning, and again in the evening. A few small clots and pieces of hydatidiform tissue came away. Temperature dropped to normal and did not again rise. She was discharged March 24, three weeks after the uterus was emptied. Four weeks after the uterus was emptied severe hemorrhage came on, which could not be controlled by packing, and the patient was again sent into the

hospital. Here she was packed and the hemorrhage stopped. Patient was very pale, pulse 115 and hemoglobin 20 per cent.

She was packed daily for ten days, then the uterus was curetted under ether, a considerable amount of tissue being removed. The hemorrhage was most profuse, and the blood was of a peculiar watery consistency. The uterus was swabbed out with Churchill's tincture of iodine, and the vagina packed. May 14, no flowing since curettement.

Dr. W. F. Whitney's report: "The specimen consists of small pieces of tissue. Microscopic examination shows a rather fibrous structure, in which are included large, decidual like cells, and in one place there is a little normal mucous membrane. Diagnosis: A piece of retained decidua, which seems to have become partly organized. I am unable to find any evidence of malignancy in this specimen."

Report of Dr. Timothy J. Leary: "Specimen consists of a soft mass of gelatinous tissue enclosing clots, together with many free clots. Gelatinous mass is made up in great part of delicate stalked cysts, varying in size from a pinhead to a small grape, semi-translucent, partially collapsed. On floating specimen in formalin solution cysts gradually filled by inhibition, and are seen to be terminal swellings of delicate branches of a central stalk, from three to ten being attached to each stalk. Microscopical examination shows cysts to consist of ends of chorionic villi; all are covered by the normal villi's coverings, which show nothing remarkable. The vessels usually occupying centre of villi are absent; the tissue is even less cellular than normal, and the mucoid substance is enormously increased. Attached to the swellings are portions of decidua and abundant fibrin. Diagnosis: Hydatidiform mole. Mucoid degeneration of villi of chorion."

TWO CASES OF SLOUGHING NEW GROWTHS OF THE UTERUS.

CASE I.—Mrs. M. D., æt. 53, widow, born in Germany, entered Carney Hospital November 1, 1902. Family history good. Has had seven children, no miscarriages. Menstruation began at eighteen, regular every four weeks until ten years ago; since then it has been more frequent (usually every three weeks). Flows five days and soaks twenty napkins. For the past eight years has had more or less pain in the lower abdomen, worse at menstrual period. Has been flowing off and on for some weeks. Has considerable offensive yellow vaginal discharge. Bowels constipated; frequent micturition. Vaginal examination: An offensive, bloody dis-

charge, ruptured perineum, and extensive laceration of the cervix, with great hypertrophy. Uterus enlarged and a mass the size of a hen's egg presenting through the cervix. Slight fullness was found in the right inguinal region, with no impulse on coughing.

Has been wearing a truss for years for right inguinal hernia.

Urine normal, November 3, 1902.

First operation: Under ether the tumor which presented at the cervix was found to be attached to the fundus uteri by a sessile pedicle. A large mass of sloughing tissue attached to the posterior wall and fundus of the uterus was removed in pieces by a volsellum forceps and scissors. The endometrium was then curetted and irrigated with hot sterile water. The uterus was tightly packed with sterile gauze soaked in alcohol. In twenty-four hours the gauze was removed from the uterus and intrauterine douches of acetozone (twenty grains to the quart) were given A. M. and P. M. for eleven days.

Specimen from this operation was not reported on by pathologist, consequently the trouble was considered to be a sloughing fibroid.

December 4, 1902, Emmet's operation for amputation of the cervix and Bassini's operation for inguinal hernia were done. At this time deep scrapings from the uterine body were sent to Dr. William F. Whitney. His report was as follows: "The specimen from Mrs. D., December 4, 1902, consisted of a piece of the cervix and curettings from the fundus. (1) The piece of cervix showed, upon microscopic examination, simply slightly enlarged glands, with a little erosion and round cell infiltration. (2) The pieces from the fundus were two or three smaller and one larger piece. Upon microscopic examination they all showed a similar structure, viz.: very numerous, rather short spindle cells, with large oval or spindle shaped nuclei, with very little space between the cells, united into irregularly interlacing bundles. The cells showed very numerous mitotic figures in all stages of division. The blood vessels had very little proper wall and seemed, rather, channels in the tissue itself. The diagnosis is a spindle cell sarcoma, evidently rapidly growing."

Had a report been received from the first specimen a hysterectomy would have been done at once.

December 12, sutures were removed from inguinal wound and perfect union found. December 14, a severe dermatitis showed itself, covering the whole body, most marked on the extremities.

The ears, left arm and legs were very much swollen. The dermatitis lasted fifteen days.

December 29, patient began to flow, the discharge being of a dark color and foul odor. Vaginal examination showed a mass about the size of a goose egg protruding from the cervix, soft and sloughing. There had been considerable bearing down pain within the last few days. Advised hysterectomy.

January 6, after thoroughly cleaning the vagina, the uterine cavity was packed with sterile gauze soaked in acetozone. The vagina was then packed in the same way, and the abdomen then opened. The uterus was found enlarged, with some old adhesions in the posterior cul-de-sac. These were separated, the bladder was dissected from the anterior surface of the uterus, and the broad ligaments were both clamped. The gauze was removed from the vagina, the broad ligaments cut and the uterus removed from the vagina. The pelvic cavity was thoroughly wiped out with acetozone, after which the abdomen was closed in the usual manner. Eighteen days after the operation patient was discharged, well.

Dr. W. F. Whitney's report: "The uterus removed from Mrs. D., received from you January 7, was very much enlarged. Measured 13 cm. in length; the cavity was dilated, measured 10 cm., and the wall was 2.5 cm. in thickness. From the middle of the body posteriorly there projected a rounded growth, which measured 8x4 cm., the outer part of which was more or less hemorrhagic and necrotic. The base was closely attached to the uterine wall, was slightly lobulated in outline, grayish, homogeneous, rather firm, and quite sharply differentiated in color from the muscular substance of the uterus. Microscopic examination of the tumor showed it to be composed of very large, oval or somewhat spindle shaped cells, lying very close together, with but very little intercellular substance. At the base it could be seen to grow in between the muscular fibres, although there was in general quite a sharp line between them. The blood, in many places, circulated apparently in channels hollowed out of the tumor substance. Diagnosis: Spindle-celled sarcoma."

Case I.—Mrs. Mac, æt. 34, widow for six years, entered Carney Hospital December 2, 1902. Two children; two miscarriages. Menstruation began at thirteen; regular every twenty-six days. Flows three to four days, uses eighteen napkins. No dysmenorrhea until the past year. Now has bearing down pains with the flow. No leucorrhea until the past month; has been flowing for the past ten

days. The use of the catheter has been necessary twice a day for the past week. Appetite poor, digestion good and bowels regular. A mass the size of an egg is palpable above the pubes.

Operation, December 4, 1902. On dilating the cervix a large sloughing mass the size of a man's fist was found attached to the posterior wall of the uterus. This was removed by means of scissors and volsellum forceps. The endometrium was then curetted; the uterine cavity was washed out with alcohol. Diagnosis: Sloughing fibroid. December 19, discharged, well.

DERMOID AND MULTILOCULAR CYSTOMATA OF THE SAME OVARY.

Bridget K., married, 43, mother of four children, entered the hospital January 6, 1903. Menstruation began at sixteen, and from that time until thirty-eight flowed regularly every twenty-eight days. From thirty-eight to forty-one flowed variously every one to five months and in diminishing amounts. At forty-one ceased altogether and has had no sign since. At thirty-seven (six years ago) noticed a slight enlargement of the abdomen and was told by a physician that she had a fibroid tumor of the uterus. For the following five and a half years she experienced no trouble or difficulty, though there was a gradual increase in the size of the tumor.

In July, 1902, noticed a sudden increase in the size of the tumor, which produced discomfort, some pain and bearing down in the pelvis. Vaginal examination showed the pelvis and lower abdomen filled with a tense mass, fluctuating on pressure and reaching midway between the umbilicus and the ensiform cartilage. The abdomen was opened and through the trocar fourteen pounds of bloody fluid were removed from a tumor of the left ovary. The capsule of the cyst was adherent to the intestines and omentum. In addition to the cyst, which had been emptied, there was a hard feeling tumor of the same ovary the size of a cocoanut. After the removal of the tumor the uterus was suspended. Patient was discharged, well, twenty-three days after the operation.

Pathologist's report: "Received a large ovarian cyst (empty), having an approximate diameter of 32 cm.

"Cyst is thick walled, grayish white, and presents many vascular adhesions on the surface. At point of attachment to broad ligament there is a secondary cyst 8 cm. in diameter, with thicker walls (6cm.), and which did not communicate with the larger cyst. This smaller cyst, which had been emptied of its fluid contents, contained a mass 3 cm. in diameter, made up of hair matted

in sebaceous material. Its walls contained at one point small calcareous plates, from above which is growing a collection of short, fine hairs. At another point is a short rounded protuberance, from which are growing fine hairs.

"Microscopical examination of walls of cyst shows it to be made of fibrous tissue covered by a single layer of flattened cells and enclosing large numbers of minute cavities similarly lined and filled with mucoid contents. Protuberance mentioned is composed of a dense mass of hair follicles and sebaceous glands and a small amount of connective tissue. Diagnosis: Dermoid and multilocular cystomata of ovary."

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of June 19, 1903.

The President, Dr. Charles S. Bacon, *in the Chair.*

EXHIBITION OF SPECIMENS.

Dr. Palmer Findley presented a

MENSTRUATING FALLOPIAN TUBE.

January 17, 1902, I demonstrated to this society three microscopic sections removed from menstruating uteri, one from a uterus removed 26 hours after the beginning of the bloody flow; one in the third day of the bloody flow, and a third 24 hours after the cessation of the menstrual flow. In all the surface epithelium of the mucosa was intact, save here and there the accidental breaking off of a few cells. There was no shedding of the mucous membrane, as is generally believed to take place during menstruation.

In my histological studies of five menstruating uteri removed in the various stages of the period, I was able to demonstrate the findings of Gebhard, who recognized the following stages:

1. *The stage of premenstrual congestion,* in which the capillaries of the mucosa are congested; a serous or serosanguineous exudate infiltrates the stroma of the mucosa, widening the intercellular spaces; later the blood leaves the capillaries and infiltrates the stroma, gravitating in the direction of least resistence, *i.e.,* toward the uterine cavity, and forming a collection of blood beneath the surface epithelium.

2. *The stage of active hemorrhage,* in which the blood is forced between the epithelial cells into the uterine cavity; here and there the epithelium is lifted from its bed, the continuity of the surface is broken, and bits of epithelium are accidentally broken off and

are carried with the menstrual flow. Blood may also find its way into the gland lumina.

3. *The stage of post menstrual involution,* in which the blood vessels become less engorged; blood is no longer extravasated into the connective tissue spaces; the blood left in the stroma is slowly absorbed; the surface epithelium lifted from the stroma resumes its former place, and lost epithelium is rapidly regenerated from adjacent epithelial surfaces.

In my report of five cases in which the above changes were demonstrated in the uterus, there were no such events occurring in the Fallopian tubes. Since this report was made I have found similar changes in the Fallopian tubes in two cases, in which the operation was performed by Dr. J. C. Webster during the menstrual period. These changes were identical with those recorded in the first and second stages of the menstruating uterus. Otherwise, the tubes presented a perfectly normal appearance. They were removed, together with cystic ovaries. While I would not make the positive statement that these tubes were menstruating, yet from the fact that tubes removed under similar conditions, but in the intermenstrual period, have never presented such changes in all my observations, and since these were removed during the menstrual period and present the same histological appearance as does the uterus at a similar stage of menstruation, I feel justified in regarding them as menstruating Fallopian tubes. If the Fallopian tubes assume the function of child bearing, why do they not also menstruate? Reasoning from analogy, would they not be expected to menstruate far more frequently than they become pregnant? It would, furthermore, be interesting to speculate on the greater liability of a tube that menstruates to become pregnant.

DR. EMIL RIES.—Were there any pathological changes for which these tubes were removed?

DR. FINDLEY.—None. The tube came away with the ovary. There was an ovarian lesion, but the tubes were perfectly normal.

DR. RIES.—-I have examined a number of tubes that were removed during menstruation, where I have been particularly careful to handle the tubes as little as possible, trying to find out whether there was any menstruation in the tubes or not. I have such specimens, which show nothing. Reasoning by analogy is never conclusive evidence. Dr. Findley says if the tube is liable to contain fetus and be the seat of a pregnancy, as the uterus is, why should not the tube also assume the function of menstruation? If we want to reason that way, occasionally the omentum is the seat of pregnancy, and the ovary, then why should not the omentum and the ovary menstruate? Of course, that would carry it altogether too far. The most important point in favor of tubal menstruation is found in the cases of occlusion of the canal below the body of the uterus, where fluid accumulates in the uterus and the tubes. I have a number of specimens of tubes removed on account of such malformation, where the diagnosis of hematosal-

pinx was made, and where the tubes show changes as in this specimen of Dr. Findley's, only much more pronounced. But in these cases of apparent menstruation we have come to the conclusion that it is not safe to assume that it is actually a tubal menstruation; that it may be a hyperemia, with hemorrhage taking place without the regular menstrual character. Hemorrhage and menstruation are not the same thing.

DR. E. C. SEUFERT.—I am not a member of this society, but came down to take a look at Dr. Findley's specimens. I have had the same fortune in finding a specimen of a menstruating tube. About a year ago I cut a normal Fallopian tube into microscopical sections for my class, and in looking them over found quite a large number that showed typical menstrual changes. These slides, before us to-night very forcibly remind me of my own, although I think my slides showed the changes still better than these. I have not yet had an opportunity to look at these closely, but I notice in the first slide that the blood vessels are extensively congested, and I would expect in looking through more of these slides that we would see still more typical changes.

DR. H. P. NEWMAN.—I would like to ask Dr. Seufert if his cases were of true menstruation?

DR. SEUFERT.—Yes; they were true menstruation. I looked up the history of the cases afterward.

DR. NEWMAN.—I would not regard the existence of tubal pregnancy as an argument in favor of the probability of menstruation from the tubes. Tubal pregnancy always results from some pathological change or accidental cause. I would not regard the two occurrences as related in any way. And, as Dr. Ries says, there is a difference between mere hemorrhage into the tubes and the true menstrual function.

DR. FINDLEY, in closing, said: Dr. Ries is certainly privileged to assume the position he has taken in viewing the occurrence of tubal menstruation as doubtful. I have not claimed it as an undisputed fact. Nevertheless, I am convinced that in a small proportion of cases (two of my seven observations) the Fallopian tubes do menstruate, and I have presented these specimens in confirmation of this view. No one can say they are not menstruating. The marked congestion of the endosalpinx, the extravasation of blood into the connective tissue spaces and into the lumen do not necessarily constitute the act of menstruation; yet it is all we know of the anatomy of menstruation from our studies of the menstruating uterus. Here these changes are well marked, and there is an absence of all other causes leading to such congestion. I would ask Dr. Ries if it is not an established fact that primary ectopic pregnancy is always tubal in origin, and not omental or ovarian, notwithstanding the many attempts made to substantiate them? This, at least, is my view.

DR. RIES.—Dr. Findley wants to know whether I believe the uterus and tubes are the only organs that can be the primary seat of pregnancy. I do not. The recent reports we have had of

ovarian pregnancies leave little doubt that such a thing is possible. I do not know of any case where the primary seat of pregnancy was omental.

Tubal menstruation can scarcely be proven by histologic examination. It will have to be demonstrated by other observations. But this much can be shown by anatomical or microscopical observation, that tubes removed during menstruation do not show any signs of menstruation, and this has been proven more frequently than has the bloody discharge.

Dr. C. S. Bacon reported a case of

PHLEGMASIA ALBA DOLENS DURING PREGNANCY.

Mrs. R., æt. 23, primipara, in the 33d week of her pregnancy slipped and fell on the ice and was quite severely shocked. Shortly after she began to have severe pains in the abdomen. About one and one-half hours after the accident I found that well marked uterine contractions had begun. They continued for several days, in spite of considerable doses of morphia, but finally quieted down and we began to hope that the danger of an interruption of pregnancy had passed, when, ten days after the accident, the left thigh and leg began to swell and a typical phlegmasia developed. There was fever for several days, considerable edema and great pain. The limb was elevated, enveloped in moist dressings and morphia given, until after three weeks the patient was able to get along with a bandage and cotton dressing. During this time there were many and painful uterine contractions. For a week or more before labor the patient was able to get around on a wheel chair. Confinement occurred at term, 283 days from the beginning of the last menstruation, 270 days from conception, and 151 days from the first appearance of the fetal movements. Labor was quite normal, lasting about 16 hours. For a few hours after the delivery of the child the temperature was 100.3, and the pulse between 85 and 94. On the fifth day temperature was 100.5 for a few hours and the pulse 100. With these exceptions, there was no fever or other sign of sepsis in the puerperium. The patient began to sit up in her wheel chair on the 18th day. The leg had been only slightly swollen and tender during the whole time. Five weeks after confinement she began to walk a little, and the limb became more painful and swollen. By the use of bandages it has been kept in fair condition. Seven examinations of urine were made during the pregnancy, and a slight amount of albumin was found once about the middle of the pregnancy, which disappeared the following week. Nothing abnormal was found in the urine after the appearance of the phlegmasia. The patient had never had any trouble with the limb. With the exception of anemia in her girlhood she had always been pretty well. The physical examination disclosed no organic heart disease or other disease. A vaginal and rectal examination made after the appearance of the phlegmasia disclosed no intra-pelvic phlegmon. After a hasty glance through the Jahresbericht I was surprised to find

so few cases of phlegmasia during pregnancy reported. I have found but four. Williams mentions that he has seen one. One case is reported by Brindeau and two by Saint Ange. The latter occurred in the early months of pregnancy while Brindeau's case was apparently spontaneous, and in the last month of pregnancy. The pathological anatomy and etiology of phlegmasia is obscure. There is not even agreement as to the question whether the accompanying femoral phlebitis is primary or secondary, although it is generally assumed to be primary or the cause of the cellular edema. Whether the lesion of the vessels is due to infection, mechanical injury or results from changed condition of the blood is also a question in dispute. My case throws, perhaps, no light upon the subject. The absence of fever and any sign of local infection previous to the appearance of the swelling tends to show that infection was not a factor. On the other hand, we may easily imagine that the long continued uterine contractions following the accident may have dislodged placental masses that formed rudimentary emboli or perhaps altered the blood composition. This seems to me the more probable explanation, and tends to confirm me in the opinion that phlegmasia is not always of septic origin. I had considerable fear that labor would come on while the phlegmasia was in its acute stage. Brindeau's case, as well as my own, seems to show that phlegmasia is not made worse by labor. If the limb were very sore the movements of the patient during labor would probably add to her discomfort. The affection does not seem to complicate the puerperium. No doubt it is wise to delay labor or prevent premature delivery, if possible, but so far as any conclusions can be drawn from two or three cases we may, perhaps, conclude that the danger of labor during phlegmasia is not so great as might be expected.

DR. RUDOLPH W. HOLMES reported

TWO CASES OF ABLATIO PLACENTÆ.

Two years ago I took for the title of my inaugural thesis before this society "Ablatio Placentæ," a name suggested by me to replace the cumbersome phrase, "Premature Detachment of the Normally Situated Placenta." I also presented facts which made it seem warrantable to discard the old name of "Accidental Hemorrhage," as it intimated an erroneous conception of the etiologic factors. In that paper I made a provisional estimate as to the frequency of this form of hemorrhage as one in two hundred, which could only come within the domain of the pathologist, while clinically it occurred once in five hundred cases. I based these statements upon the investigations of Brodhead, of the Sloane University, the statistics of the Chicago Lying-in Hospital and Dispensary, and of the Dublin Rotunda. With the idea of having the nomenclature in consonance with clinical facts, I suggested that the clinical cases should be denominated absolutely concealed and relatively concealed, for it is an almost constant observation that the blood appearing at the vulva is rarely commensurate with

that which has escaped from the disrupted uteroplacental spaces; in other words, the blood manifested at the vulva outlet is never to be taken as the criterion of the blood lost to the maternal circulation.

That the condition of ablatio placentæ is not so rare is evidenced by the opportunity I have of presenting the reports of three cases and showing their placenta with microscopic sections therefrom. That two of these cases are purely of scientific interest, the diagnosis dependent entirely upon the finding of old, firm, deeply buried blood clots within the placenta, does not detract at all from their relation to true premature detachments.

CASE I.—This was one of eclampsia. The patient was a Jewish woman, 22 years of age. II-para, the first pregnancy terminating in an abortion of four months. Has had no serious illnesses in her life. Menstruated at 13 years. Last menstruation at the end of June, 1902. During the pregnancy she enjoyed her usual good health. Early in the evening of February 24 Dr. Coffey, interne of the Chicago Lying-in Hospital, was called on account of the suspected onset of labor. Examination showed no signs of labor; there was some edema of the legs. During the preceding few days she had felt some indisposition. Dr. Coffey remained by the case for nearly an hour, watching developments; then left with instructions to be recalled if needed. Within a few minutes he was hurriedly summoned, and informed she had had a convulsion; within a few moments after his return she had two more typical eclamptic seizures. On my arrival at nine o'clock, the woman was semi-conscious—could be aroused to make incoherent statements. She was sent to the hospital, arriving at 11 P. M. By this time her mind had cleared some; her condition seemed to warrant expectancy. Her bowels were moved; chloral and morphia exhibited; a hot pack was applied. On admission a catheterized specimen showed 98 per cent. of albumin by the Esbach tube. A morning specimen showed a large number of granular, epithelial and hyaline casts, some blood, and a smaller percentage of albumin. During the 25th she had some uterine contractions, weak and infrequent. During the night the fetal heart tones disappeared. On the 26th contractions were some stronger. In the course of six hours the os made no progress in dilatation, and as the labor was not borne well, a Braun bag was introduced at 4 P. M., with a prompt response to the stimulation. In spite of strong pains and traction on the bag dilatation was not secured until midnight. At 12:15 A. M., February 27, the bag was withdrawn, the membranes were ruptured and version was performed. The original fetal position was L. O. A., but shortly after the bag was introduced the head was pushed to one side; at the time of operation the position was a frank L. Sc. A. The version and extraction of the six pound macerated male fetus was easily accomplished. On account of the escape of fresh blood, Credé was done at once, and the uterus packed with lysol gauze. The placenta was 12x14x2 centimeters; the opening in the membranes

was lateral, some 9 centimeters separating the placental rim and nearest border of the opening. Almost in the center of the maternal surface was a firm, black clot, about half the size of an egg, fitting a depression measuring over half the thickness of the placenta. There had been no bleeding during the labor. The patient recovered from her eclampsia.

CASE II.—Mrs. S., æt. 29, primipara. Maternity of the Presbyterian Hospital. Reported by courtesy of Dr. J. Clarence Webster. Puberty at 13 years. No suggestive personal history. Last menstruation July 25, 1902. Fetal motions felt November 15. In last weeks of pregnancy had some edema of legs. Urine negative. Child in L. O. A. position; delivered April 23, 1903. Placenta weighed nineteen ounces, 15x18 centimeters in size. Membranes complete; numerous white infarcts; a firm clot, deeply buried in the placental tissue opposite the insertion of the cord, which was eccentric. The opening of the membranes was 9-10 centimeters from the nearest placental border. No ante-partum hemorrhage, and no undue post-partum discharge. Mother and child both lived

CASE III.—Mrs. S., æt. 32. III-para. Menstruated first at 15; has been always regular, with pain before each flow; pain has been worse since marriage. The first pregnancy occurred at 17, the second eleven months ago. Menstruated last on August 18, 1902. She had a puerperal infection following her first labor, which was easy. In the second pregnancy she had edema of the legs. During this pregnancy she suffered from constipation, had poor appetite, and toward the end swollen legs. During the first three months there was an almost constant discharge of blood; thereafter, at intervals of three to four weeks, she would have pains as if labor were commencing. Generally at the height of these painful periods there would be gushes of white fluid, with occasional "lumps." Twice the discharge was sufficient to make a considerable stain upon the floor. In the intervals mucoid discharges kept up. In the non-pregnant state she was subject to leucorrhea. Two weeks before labor there was a brisk hemorrhage, following a gush of the white fluid.

Labor began at 4 P. M., May 16. Pains were strong at ten-minute intervals; had slight hemorrhage. Head in L. O. A. position. At 1 A. M. the next morning the membranes ruptured, and she at once sent for Dr. J. V. Fowler. Before his arrival she lost at least a pint of blood. At Dr. Fowler's request I saw her at 4 A. M. I found the os admitting three fingers, a roomy vagina, and a pulseless prolapsed cord. Transferred to the Passavant Hospital. Hystereurysis, and then craniotomy; Credé. The placenta offered nothing characteristic of ablatio placentæ. The opening in the membranes was about 7 centimeters from the placenta in the shortest distance. The placenta showed no gross manifestations to explain the hemorrhage, beyond some darkening of the lower half of the maternal surface. The chorion offered no clue as to the precedent hydrorrhea gravidarum. This

was a border line case between placenta previa lateralis and abla-
tio placentæ.

The two placentæ illustrating premature detachment were pre-
pared for microscopic examination by Dr. Fehring, laboratory as-
sistant in the Department of Obstetrics and Gynecology in Rush
College. Unfortunately, the specimens showed nothing sufficiently
characteristic to permit a declaration that they differed from ordi-
nary ripe, senile placentæ. Many of the villi had undergone a
hyaline degeneration, and also the same condition was found in
many of the villous arteries. Here and there the arteries were
much dilated. Others were much contracted, with marked signs
of arteritis; the villi in the neighborhood of the clot were much
compressed. Fibrinosis was well advanced in the villi, and also
in the shreds of decidua. These placentæ illustrate our misfor-
tune in not fully knowing the significance of so-called infarcts,
fibrinosis, etc., of the fully mature placenta. Undoubtedly the fu-
ture investigation of the normal placenta will permit a more per-
fect interpretation of the findings in pathologic afterbirths. At
the present time, however, it is no longer justifiable to lay the
stress upon accidental causes as has been done in the past. In most
instances there must be some diseased condition of the placenta or
uterus, or both.

Dr. EMIL RIES made comments upon the

MEDICO-LEGAL INTERPRETATION OF THE UMBILICAL CORD.

In a recent number of the Centralblatt für Gynäkologie (1903,
No. 12), Bucura publishes some researches he has made on the
arteries in the umbilical cord. He found, as other authors have,
that the artery in the umbilical cord contains a layer of longitudi-
nal muscle fibers inside the circular layer. The longitudinal lay-
ers of non-striated muscle come together and close the lumen of
the artery. The layers of muscle are not arranged perfectly even,
and form protrusions in some parts. He examined the cords
of six living children in serial sections and found these promi-
nences throughout closing the artery. He found the same in ten
more cords of living children. On examining the umbilical cord
of one macerated fetus he found that the arterial lumen was not
closed or narrowed, but contained a large circular cavity filled
with blood, and that the longitudinal muscle layers in the artery
did not come together, had not formed protrusions as in the liv-
ing child. He examined a case of a dead fetus not macerated and
again found the lumen of the artery wide, circular, patulous. It
is perfectly evident that if these researches should prove to be re-
liable and correct the findings in the artery of the umbilical cord
might be of extreme medico-legal importance, because the ques-
tion whether a child had been killed during labor or whether the
child had been born dead might be decided upon just such points.
When I read this paper I remembered I had some sections of
umbilical cords which I made about 13 years ago. I brought
them here so that you can see them under the microscope. There

are two cross sections of the umbilical cord in the living child, and the artery, you will see, is closed completely, so that there is practically no lumen; there is only a star-shaped cleft showing where the lumen ought to be. You see the layer of longitudinal fibers arranged in several elevations. Under the other microscope you see the umbilical cord of a macerated fetus, and you will also notice that the longitudinal layer has prominences which very much narrow the lumen, though it is not closed entirely. I brought these sections so that you could convince yourselves that it would be unsafe to base any medico-legal conclusion on such evidence.

DR. J. B. DE LEE reported the following cases:

The first case to be reported is that of a woman who suffered from a congenital dislocation of both hips. This woman was a premature infant, an Italian, born at the seventh month of pregnancy. Since she was able to walk a peculiar waddling gait has been noticed. She in all respects presents the typical lesion of a dislocation of the femur. The woman went to term, and after a long labor, instrumental interference was necessary. Owing to the pendulous belly the head would not engage in the pelvis, but remained occipito-posterior, above. Tarnier's axis-traction forceps was applied, but after the head was drawn into the pelvis it interfered with its delivery, and the Simpson low forceps was applied and the child delivered without difficulty. It weighed about seven pounds.

The second case is one of hip-joint disease, tubercular in its nature. Also an Italian, about 22 years of age. This woman suffered from hip-joint disease. She has had left hip-joint disease from her 12th year. She married in her 21st year, and pregnancy immediately followed. She has the typical deformity of hip-joint disease. You will notice that she has a shortening of the leg of at least six inches. The spinal column is thrown into an S-shape; a line drawn through a point between the condyles of the occipital bone and touching the spinal column at various points to make a center of gravity and line of direction would pass through the healthy acetabulum. The pushing of the vulva and tubes over to the side is nicely demonstrated. Pelvic measurements showed a normal sized pelvis, but one distorted. The internal measurements likewise showed a normal sized but distorted cavity. The flattening on the healthy side was apparent on internal examination, and the bowing out was likewise apparent on the diseased side. The labor was one characteristic of that pelvis, and shows that the pelvis has a great deal to do with the mechanism of labor. It is claimed by some authors, particularly the Germans, that in normal labor the pelvis does not exert any influence on the mechanism of labor. I have always claimed that it does exert a great deal of influence, and in this case the influence was exaggerated. The head remained persistently right occipito-posterior. The woman was in hard labor, with vigorous pains, for many hours, until finally we had to deliver with forceps. Owing to the ankylosis of the femur across the body, it was impossible to put

the woman in the lithotomy position, as we usually do for forceps delivery. So we put her on the sick side and elevated the healthy limb in the air. The forceps was then applied and the head delivered around the descending pubic ramus. There was a perineal laceration of the second degree, which healed by primary union in spite of the difficulty of applying the sutures and of cleansing the patient. Since the labor the woman has had a recrudescence of her pain in the joint, and has been sent to bed for treatment. It may be that the twisting and jamming of the pelvis and the joint during labor has produced a hyperemia, which has resulted in re-awakening the disease.

Dr. Walter S. Christopher contributed a

DESCRIPTION OF A HITHERTO UNDESCRIBED DISEASE OF THE NEW-BORN.

(To appear later.)

Dr. Effa V. Davis.—I have seen several cases such as Dr. Christopher has reported, and the rash was even more decided than he describes, the pustules being as large as half the size of a dime in two or three instances. In one family where the child had this rash I was alarmed, thinking there must be some infection, but the child throve and has been all right. I did not treat it, because I did not know what to give it. A second child showed the same rash twelve days later, but I cannot now recall that there was any decided rise in temperature. They both had this typical rash, and are both living and thriving.

Dr. C. S. Bacon.—I have seen a number of cases where some or all of the symptoms given by Dr. Christopher were present. The order of the appearance of the symptoms in the cases I have observed has been, perhaps, a little different. Generally the first thing noted was the absence of urine, or the excretion of a very small amount, and, in the course of a few hours or days, the onset of fever, the rash appearing, as a rule, two or three days later. Whether the rash is the same as that described by Dr. Christopher or not, I do not know, because I have not studied it so carefully, and should not have described it as being confined to the localities he has mentioned, but the pustules were quite similar to what he has described. These cases that I have in mind, if they are the same, would not seem to be extremely rare; it seems to me we find a good many gradations in severity. While sometimes there is a very high fever and all of the symptoms are very marked; in other cases they are much lighter. I have often speculated upon the character of the trouble, and supposed that possibly they were developments of some kind of an intoxication that arose, perhaps, in this way: the fever itself was the result of intoxication, the rash secondary. The rash might be due to the infection to which every child is exposed, particularly in cases where the resistence of the tissues is materially lowered on account of the disturbance of the secretions and of the other vital processes. Whether such a group of symptoms could be sufficient to consti-

tute a specific disease or not, or whether it is rather a group of symptoms that follows a general intoxication from various sources I would not say. The prognosis one would make in a case of eruption and scanty urine is very much less serious than that which is given by Dr. Christopher. I should not think, off-hand, that the mortality was more than five to ten per cent., but I am quite curious to know whether the cases I have in mind are the same as those described by Dr. Christopher.

Dr. H. P. Newman.—I would like to ask the Doctor to specify as to the number of these cases that have the eruption.

Dr. Christopher, in closing the discussion, said: I look upon the eruption as being absolutely characteristic and necessary to make a diagnosis. In reply to Dr. Bacon, I would say that I think there are certainly cases in infants where eruptions similar to this occur, but which are quite different if you look at them closely. It would be an easy matter to find the ordinary red gum rash which appears upon the forehead of practically every newborn child. The pustules in this disease are about the size of the papules in red gum. In the red gum eruption the elevation is papular, in this it is pustular. The pustules are extremely superficial, covered by a thin layer of epidermis, and frequently would be overlooked as pustules if a close examination were not made. They do not tend to bulge out and become anything like boils. It may be the Doctor has met with cases different from my own, and yet of the same general nature, differing in their prognosis materially. He sees a great many more newborn babies than I do, as he is present at their birth. My only opportunity for seeing them is in consultation, and, naturally, I am only called to the cases which present some degree of seriousness, so it is very possible that my mortality idea is exaggerated. It must be that there are ordinary degrees of the affection I have attempted to portray. On the other hand, I think we must be careful to distinguish these cases from pemphigus, and when the blebs are large, of course, they are not at all of the nature of the disease I tried to describe.

<div style="text-align:right">Rudolph W. Holmes, M.D.,
<i>Editor of the Society.</i></div>

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of May 21, 1903.

DR. DOWNS reported cases of

ALBUMINURIA IN PREGNANCY.

My idea in bringing this subject before you is to briefly discuss five cases that have come under my observation, as exemplifying the different situations during pregnancy wherein albuminuria is present, and to draw particular attention to the fact that during all stages of pregnancy, whether in primiparæ or multiparæ the toxemia may show itself. I quite recognize the fact that while the appearance of albumin and casts in the urine during pregnancy is not by any means the only manifestation of the poison's influence, we are bound as yet to give their presence greater prominence.

CASE I.—Mrs. F., II-para, æt. 28. Previous pregnancy and labor without incident, except for protracted and instrumental labor. During her second pregnancy at eight and one-half lunar months, albuminuria showed itself, without further symptoms. Rigid diet and proper rest were the means of eliminating the albumin entirely, and the toxemia has not since been apparent. Illustrating transient albuminuria which I believe is far more common than we are apt to allow.

CASE II.—Mrs. A., primipara, æt. 24. Family and personal history excellent. Normal pregnancy. At the ninth lunar month albumin and casts showed themselves without other symptoms. Though under rigid dietetic and medicinal treatment, the albumin gradually increased in amount and casts became more numerous. Labor was induced at about term and patient delivered of twins, which lived. Patient has had four subsequent pregnancies and labors without incident. Illustrating the increased toxic influence of twins, especially in primiparæ.

CASE III.—Mrs. S., æt. 36, V-para. Third and fourth pregnancies and labors normal. In this pregnancy at sixth lunar month she developed albuminuria with casts, but no further symptoms. Energetic dietetic and medicinal treatment resulted in uncomplicated labor at term. Albuminuria continued after labor and several years later she had uremic convulsions from which she recovered and is now apparently well. Illustrating the chronic pernicious effect of the poison.

CASE IV.—Mrs. K., primipara and multipara, æt. 26. Family and personal history good. At nine and a half lunar months albuminuria showed itself, accompanied with casts. Rigid dietetic

and medicinal treatment held the toxemia in abeyance. At termination of first stage of labor convulsions set in. It was quickly terminated with forceps under ether and patient made excellent recovery, with living child. Two years later in second pregnancy at ninth lunar month, when the urine had been entirely normal since last labor, she again developed albuminuria. Patient normally delivered at term at the University Maternity. Illustrating two consecutive pregnancies wherein the toxic influence was markedly prominent.

CASE V.—Mrs. X., V-para, æt. 27. Family and personal history excellent. Four previous pregnancies and labors normal. During the fifth lunar month of fifth pregnancy albuminuria and casts showed themselves and continued until labor was accomplished at term. The baby was emaciated, otherwise healthy and has lived. A subsequent pregnancy and labor was entirely normal and free from toxic symptoms. Illustrating a multipara showing kidney inability to withstand the toxic poison followed by a complete restoration and ability to so do in a subsequent pregnancy.

These cases show: (1) Transient albuminuria in a multipara, previous pregnancy being normal; (2) albuminuria in primipara delivered of twins, with four subsequent normal pregnancies; (3) albuminuria with eclampsia in primipara and albuminuria in the following pregnancy; (4) albuminuria in previously healthy multipara, followed by chronic nephritis; (5) albuminuria in multipara, fifth pregnancy, four previous ones being normal and followed by a normal pregnancy and labor.

The case of transient albuminuria is particularly instructive. It was under most careful observation, the urine being examined with distinct regularity and always found normal in every respect, except for the presence of oxalate of lime crystals in excessive amount. Suddenly there appeared in the urine a considerable amount of albumin, without casts, and a high specific gravity, and without further symptoms. A week of rigid dietetic and medicinal treatment were the means of entirely eliminating the poison and there has been no return of the albumin. I believe we would more frequently find just such a condition were we more on our guard to detect it. The elimination of oxalate of lime crystals during pregnancy is a fact of which I have taken particular account. I find this elimination almost constant during pregnancy and I am never surprised to find, in fact, I expect to find, albumin when this elimination is excessive in amount. What this relationship is, is difficult to demonstrate, but that it does exist I am convinced. I am decidedly of the opinion that albuminuria of pregnancy is of far greater frequency than is generally understood. Hospital statistics are of little value when studying the subject. Their cases come in late in pregnancy and the patients have had unhygienic surroundings, are poorly fed, and under mental and bodily strain. In private practice we should expect to find, if carefully looked for, albuminuria of pregnancy in more than 15 per cent. What we understand by the appearance of albuminuria in pregnancy is

that it is but an expression of the intensity of intoxication, which is evidently dependent upon the resultant tissue metabolism occurring in the living fetus, for it has been fairly proven that the death of the fetus in utero is accompanied by cessation of the albuminuric symptoms. The methods of assisting in the elimination of the poison are manifold, by the kidneys, liver, skin and lungs, and by hygienic surroundings. Of the greatest importance are rest in bed and milk diet. I lay particular stress upon confining patients to their beds, for in no other way are the excretory organs so disposed to perform their functions.

The chief interest which attaches to albuminuria in pregnancy is the relationship this condition bears to eclampsia. While it is true that in a few recorded cases eclamptic attacks are said to have occurred quite independent of any appearance of albuminuria, the fact remains that eclampsia is practically always preceded by the appearance of albumin in the urine. Therefore, this forerunning of what may happen unless the kidney elimination is assisted, makes it altogether imperative that careful and frequent analyses of the urine shall be made at all stages of pregnancy. We are open to criticism when we have the opportunity to have patients thoroughly under control, and eclampsia supervenes, unless it be where the toxemia is sudden and overwhelming in its onset and results almost immediately in eclampsia—but we have the means by various dietetic, hygienic and medicinal treatment to eliminate the poison by the kidneys or other channels, or else terminate pregnancy before the danger line is reached. In other words, I believe that in a very large proportion of cases eclampsia is preventable. The indication which the elimination of urea bears to eclampsia is an interesting subject for further investigation, but my own experience bears out the statements recently made by Dr. J. C. Hirst as a result of his studies that there is no relationship which is of any value as a guide to foretell the likelihood of eclampsia.

Dr. W. Reynolds Wilson.—The presence of albumin late in pregnancy is of considerable importance. It is linked with other symptoms of toxemia which occur early. Very often we see women who early in pregnancy have persistent vomiting and who suffer from headache. Albuminuria may not be a concomitant symptom, but with the cessation of these nervous manifestations of toxemia albumin may make its appearance. In other words, the presence of toxemia is shown sometimes by one symptom, and sometimes by another, and albuminuria is an important index of its presence. I can, therefore, hardly agree with the last two speakers that the presence of albumin alone is of little significance. There are certain women, of a nervous type, often multiparæ with the care of younger children, who, when they become fatigued or their nervous energy fails, get into a condition in which the development of toxemia is imminent. The first evidence of trouble in such women is the presence of albumin with an accompanying reduction of urea.

Dr. Stricker Coles.—I thoroughly agree with Dr. Downs as to the importance of the examination of the urine and the careful examination of the patient, but I would not place very much importance upon the presence of albumin. In one case I remember, though a large amount of albumin was present there were no casts and no symptoms of toxemia. The patient went through her pregnancy normally and never had the slightest trouble. So far as albuminuria is concerned, my experience has been that it has no effect on pregnancy. I have attended this patient since for three years and have examined the urine on an average of four or five times a year. Every time there was a large amount of albumin, but she was perfectly healthy so far as I could find. She told me when I first saw her in the fifth month of gestation, that she had been treated for Bright's disease. I examined I suppose 100 specimens during her period of gestation and there were never any granular or epithelial tube casts, but always a large amount of albumin, the amount of urea was always normal. Again there are other cases with albumin associated with tube casts. In these patients I have found that eclampsia rarely occurs. If it does, it is of a minor type, and I give a very good prognosis. In all my cases I have never had any trouble from eclampsia in Bright's disease. All have gone on well and most of them with Bright's disease will clear up afterwards. On the other hand, have lost a good many children in Bright's disease. I induce labor to save not the mother, but the child. Again we see cases with eclampsia without albumin in the urine and in which the poison irritates the kidney and liver, causing albumin in the urine with tube casts with acute Bright's disease. I believe the kidney trouble is secondary to the toxemia. This form of trouble is much more grave than the other. I examine carefully for the amount of urea and for specific gravity and casts, not paying very much attention to the presence or absence of albumin unless it is present in large amount. In all the cases that I have examined, I have never yet found one in which the urea was low that the patient did not suffer with toxemic symptoms. My practice was brought to a severe test about ten days ago. In the examination of a specimen the urine was found to be perfectly normal. Two days afterward the patient sent for me saying she had a violent headache. Finding the amount of urea normal, the other symptoms of eclamptic convulsions did shake my confidence. The headache disappeared. I examined the urine every day and each time there was a normal amount of urea, with a slight trace of albumin, but no casts. The condition cleared up in thirty-six hours. If I had not known that the urine had been examined two days before and found perfectly normal my prognosis would have been eclamptic convulsions.

Dr. W. A. N. Dorland.—I believe we are to-day practically where we were ten years ago regarding the etiology of eclampsia and the kidney of pregnancy and the relation of albuminuria to eclampsia: that is, we think it to be a toxemia, but whence the

toxins come, and in which cases we may expect to deal with ec-
lampsia, we know no more than at that time. I feel very much as
does Dr. Coles, that the amount of albumin in the urine does not
signify very much, unless it is present in considerable quantities.
In the last two cases of eclampsia which I have had there was no
albuminuria noted at any time prior to the development of the
convulsions, a careful examination being made on the day of labor
in each case. One of these was a fatal case, and in this instance
the last examination was made at six o'clock of the evening in
which the patient died. The other case I saw this week with Dr.
Robert N. Willson, and he informs me that the urine examined
the day of labor showed no trace of albumin. I recently had a
case of marked diminution in the excretion of urea associated
with toxic symptoms, referred to me by Dr. Jewett of New York,
at about the sixth month of pregnancy. She had pronounced
symptoms, and the quantity of urea was quite deficient. Under
active stimulation and elimination the urea increased in amount.
With this increase in excretion the headache diminished and the
other symptoms disappeared and the woman was normally de-
livered at term. I do not think that albumin in small amounts
signifies so much as does the diminution in the solid ingredients
of the urine, nor does this diminution give me much anxiety unless
it be associated with toxic manifestations. As to the etiology of
renal inadequacy in pregnancy, I repeat, we know but little.

Dr. Downs, in closing said: The cases which I presented
were of women in apparently good health, who, during pregnancy,
exhibited symptoms of toxemia by the presence of albumin in the
urine. I cannot agree with Dr. Coles and Dr. Dorland as to the
relative advantage of the study of urea elimination in pregnancy
as indicative of further damage likely to come. I think a faint
trace of albumin in the urine of a pregnant woman is of no con-
sequence, but accompanied by an increasing amount of urea and
a high specific gravity and toxic symptoms I think the amount
of albumin is of considerable importance and it would guide me
in considering the termination of pregnancy. I would pay more
attention to the increasing amount of albumin than I would to the
percentage of urea because the normal elimination of urea in the
pregnant woman is an unknown quantity. We have an idea of
what it is during health in the average adult, but I have not
heard of any analysis showing the normal elimination of urea
in the different stages of pregnancy. I would not, therefore,
place as much reliance upon the elimination of urea as upon the
elimination of albumin as indicating serious trouble ahead.

Dr. Richard C. Norris read a paper on

CONSERVATIVE SURGERY OF THE FEMALE PELVIC ORGANS.[1]

Dr. George Erety Shoemaker.—In regard to pyosalpinx, it
seems to me that the field for conservatism is not in the saving of
the tube, but in the saving of the ovary when the ovary is not in-

[1] See original article, page 451.

volved in the pyogenic process. The old plan of sacrificing both ovaries because both tubes were badly diseased is, I think, erroneous. I have recently had an opportunity to reopen an abdomen from which I had formerly removed one ovary and both badly degenerated gonorrheal tubes, and in which I purposely left one sound ovary. The woman regained her health completely, but about a year later a very small band of adhesion one-quarter of an inch in width pinned down her descending colon and gave her acute obstruction. I operated again and freed this band which was several inches away from the site of former operation, and thus had an opportunity to observe the ovary which was left. The abundant adhesions present at the time of the previous operation had all disappeared. Both cornua were healthy and the remaining ovary was sound. The woman had been menstruating painlessly and was apparently entirely well, except for the occurrence of this acute obstruction. I have recently had an opportunity to examine a patient from whom I had exsected two large cheesy tubes and left two sound ovaries with most satisfactory result. On the other hand, attempts at conservatism on the tubes where the ovaries are large and heavy and prolapsed, and especially where there is uterine prolapse, are very apt to be disappointing, as the pelvic aches continue unless the ovaries and tubes are both removed. I had, however, an opportunity a few days ago to see an admirable result in the wife of a physician operated on for Dr. Hare. The appendix was taken out for minor disease. The uterus was suspended and one prolapsed ovary tacked up to the cornu. She lost all her aches and bearing down and gained some twenty-two pounds, and is now in very excellent condition. Conservatism really involves the removal of an appendix during other operations, when that appendix is not normal. I have recently found myself removing 25 per cent. of the appendices in operations undertaken for other causes. All of these show the hemorrhagic infarcts of the mucous membrane which indicate beginning disease. In extra-uterine pregnancy conservatism of the tube is out of place, and therefore abdominal section is the operation of choice, except in the late suppurating cases when vaginal drainage of the large abscess is to be preferred. In post puerperal abscess the results are most excellent from vaginal drainage operations.

Dr. Charles P. Noble.—I think the experience of Dr. Norris is that of most of us who have analyzed our results. There are very few of the conclusions that I would at all disagree with. What I wish to say is more particularly upon my own experience regarding the points raised. In the first place, I would agree entirely with Dr. Norris in what he said about conservative surgery upon pyosalpinx cases, in which pus is found in the tube, and particularly in cases of gonorrheal pyosalpinx. Gonorrheal pyosalpinx is not a field for conservative work. The few attempts which I have made at conservatism in that field have been entirely unsatisfactory and I am sure that that is the general ex-

perience. The only exception is when the disease is very old. I have had a number of exceptions in that particular group, that is, where the germs are dead and where possibly there is an old pus sac. In a number of these cases I have operated per vaginam and drained out the pus, and quite a number have remained well for a number of years. There are two other types of pus cases in which a certain sort of conservatism is applicable. The best type and that in which we get genuine results in the sense that the parts are not sacrificed is the puerperal abscess. I have operated on a number of these by drainage, and in none have I been obliged at a second operation to remove appendages. There may be exceptions, because a certain percentage of puerperal abscesses are not septic, but gonorrheal, although they occur at the lying-in period. These will make the exceptions. The septic ones will give excellent results, simply from drainage. Quite a number have had children since. The only other type, and that was alluded to by Dr. Norris, in which I believe in conservative procedures, is in large intra-peritoneal abscess in addition to a pus tube or ovary. I believe in conservatism in these cases, not so much that they may conceive, but because of the very much smaller mortality from the drainage operation than from the radical. The second point raised by Dr. Norris was the question of drainage vs. radical operation in ectopic pregnancy with hematocele. Three times for suppuration and once because the patient had nephritis I have operated by drainage. Two of these cases had to have subsequent abdominal section. In one case within a year hydrosalpinx developed, and in the other a tubal mole similar to the uterine mole had formed, and in both cases there was such distress that radical operation was necessary. The results which we get from radical operation in ectopic pregnancy are so good that unless the patient is practically bleeding to death, it leaves nothing to be desired. Dr. Norris did not say so much about myomectomy. Personally, I believe it is desirable in young women and in those cases in which the number of fibroids is small, and that is particularly true when the fibroids are intra-uterine. In none of the cases, numbering about thirty, in which I have removed uterine fibroids, have they reported to me again for operation because of new growths appearing. Quite a number of these women have borne children. Also none of the cases of abdominal myomectomies have reported for secondary operation. Of course, that is an unusually fortunate experience, because the general average is not so favorable. In those two classes of cases, however, I am personally favorable to myomectomy. I believe in conservative work on the tubes where we have adherent tubes. For cases of adhesion none of us would remove the tubes simply because they are bound down; we would free them and leave them in. I think this gives satisfactory results. I am not enthusiastic about results secured from operation in hydrosalpinx. I think Dr. Norris' position upon the question of the removal of the appendix is entirely sound; if it is diseased it should be re-

moved. If it comes into view, and the patient is in good condition it should be removed anyhow. On the other hand, I do not think we should make it a rule to remove the appendix, because the patient has as much as she ought to bear in many operations. Conservative operations on the ovaries is the type of conservative surgery which has given the best results in my hands. I have done a number of such operations and I have been surprised at the good results in a good many cases. I have in mind now a patient, the wife of a physician, in my hands about four years ago. She had been recently married, and before marriage had been a nurse. Both she and her husband were desirous of a conservative operation. There was an ovarian tumor on one side and a badly degenerated ovary on the other. I left almost no ovary on one side, and I remember perfectly well that the appearance of the ovary was so abnormal that I doubted whether it had any real ova in it. The tumor on the other side was peeled out of just a little bit of ovary. That left two bits of ovaries of perhaps one-half inch by one-quarter inch. A baby was born in a year. A second has since been born, and recently there were twins. It seems to me that the best field for conservatism is in myomectomy and in operations upon the ovary; and, that so far as the tubes are concerned, that while we should be careful not to remove tubes which are but little diseased, after all our disappointments will most frequently come from attempts at conservatism on the tubes. Dr. Norris' expression about what shall guide us is also most sound; that is, when the patient is a young woman who has not borne children and is very anxious for a conservative operation, we should be more inclined to do such an operation than in those who express no opinions on the subject, and especially in those who are older, because there will be such a percentage of failures that I am sure the surgeon who does a large amount of conservative work in the tubes will have many disappointed patients.

Dr. Norris, in closing, said: The cases related of successful conservative surgery are the exceptions. The usual results of conservatism in dealing with the uterine appendages are disappointing. The few exceptions make us continue this class of work. The fact which I wish to bring out prominently is that conservative effort in this class of cases is disappointing as a rule.

Dr. B. M. Anspach (by invitation) demonstrated a series of gross gynecological specimens preserved in their natural colors. These specimens have been preserved in their natural color principally for the purpose of class demonstration. As you know, tissues preserved by the ordinary methods, i.e., in alcohol or formalin, soon lose their color, become dead white in appearance and give the student a very inadequate idea of gross gynecological pathology—not as good a one perhaps as is afforded by first-class illustrations.

The permanent coloring in these specimens is not due, as was formerly supposed, to a fixed oxyhemoglobin, but to a new chemical compound produced through the action of formalin and alco-

hol on fresh tissues. When formalin is brought in contact with oxyhemoglobin it forms acid hematin. In alcohol this changes to alkaline hematin, a compound which closely resembles oxyhemoglobin in color. All methods for the preservation of tissues in their natural color depend upon these reactions. After the alkaline hematin is formed it may be indefinitely preserved in a solution of an acetate of potassium or sodium. To this solution is customarily added glycerine, which restores to the tissues their natural transparency that has been partially lost in the process of preparation.

To assist in the formation of alkaline hematin, the formalin solution is made alkaline by the addition of certain salts. Many formulæ have been suggested for this first solution. The one employed here is that recommended by Pick: it gives a solution that meets every purpose, and yet is cheaper than any of the others. It consists of: water, 1,000; artificial Carlsbad salts, 50 gm.; Formalin, 50 c.c.

It requires some experience in the practical application of this method to obtain good results. The specimen is taken directly as it comes from the operator's hands, without being washed. After any necessary incisions have been made to expose all parts of the specimen, it is a good plan to leave it exposed to the air for several hours. This insures a more complete formation of oxyhemoglobin. The specimen is allowed to remain in the first solution until the color changes to a dirty gray. For moderate-sized specimens this requires about forty-eight hours. It is then immersed in alcohol until the color is partially restored—this requires usually four to five hours, very rarely more than twelve. The color is further restored and the tissues regain their transparency in the last solution of glycerine and acetate of sodium.

The jars shown here are best adapted for the natural color preparation. The specimen is mounted with silver wire upon a square of glass cut to fit the interior of the jar. The covers have a ground edge to correspond with the top of the jar and are secured to it with ordinary glaziers' putty. This answers every purpose and permits access to the specimen at any time.

Dr. Robert G. Le Conte demonstrated the use of a corset in movable kidney and gastroptosis.

More than two years ago Dr. A. E. Gallant, of New York, read a paper before this section on the use of a corset in cases of movable kidney associated with symptoms. We know that many women are subject to this condition without symptoms, but that in a certain proportion of cases symptoms are present and associated with movable kidney. It is to this latter class that I desire to call your attention. Dr. Gallant advised the use of a corset two sizes smaller than the patient was accustomed to wear. This was laced tightly at the bottom and very loosely at the top while the patient was in a recumbent position. I was unable to derive any benefit from an apparatus of this form, so I consulted a corset-maker and explained to her the position and the kind of pressure

that I desired to exert with a corset. As a result she devised the stays which I pass around for your inspection. Their principal advantages are as follows: (1) They reach almost to the pubic bones fitting closely over the iliac crests to the hip; (2) uniform and firm pressure is exerted from the pubic bones up to the iliac crests, the waist line and upper abdomen being entirely free from pressure; (3) owing to their construction, with the material cut on the bias, which material is superimposed in some places at a right angle, they will not stretch even when very firm pressure is exerted; and lastly, they are extremely light and comfortable after the patient once becomes accustomed to their use. They may be called a low fitting, straight front corset. In women who are stout and have a good deal of adipose tissue over the abdomen it is a very simple matter to fit such a corset and force a pendulous abdomen upwards. Not so, however, in women who are thin and in whom the line from one iliac crest to the other is almost straight. Here, the corset is more difficult to fit, and in addition, in order that the kidney may be retained in its proper place, a pad must be used. This pad is from five to six inches long and four to five inches across, and in profile is wedge-shaped, the thinner portion being below and the base of the triangle above. It is generally made of horsehair and stitched in the proper position to the corset. In stout women the corset may be applied in the standing position. The lacings having first been loosened, the corset is hooked in front. The right hand is then introduced within the corset to the bottom of the abdomen, and the abdominal wall and organs within pulled upwards. The lowest lacing is then pulled tight, while the upper one is allowed to remain comparatively loose. In a thin person such manipulations are not always satisfactory and the corset has to be applied with the patient in a recumbent position, and the abdominal muscles relaxed.

The subject who is putting on this corset illustrates how it is applied, how it should fit, and demonstrates that no pressure is brought upon the body from the waist-line upwards. The act of respiration is perfectly free, and the pressure across the lower abdomen is very firm. Movable kidney is many times associated with disease of other organs, as of the appendix, uterine appendages, the gall-bladder, etc. Under such circumstances it is but natural to suppose that the corset will have no effect upon the associate disease. It is my custom then to operate for the diseased appendix, gall-stone, or whatever it may be and afterwards to fit the patient with a corset. I mention this because I have frequently seen surgeons after removing an appendix or gall-stone, turn the patient on her face and stitch the kidney in place, and I do not believe that this double operation is always justifiable. If the displaced kidney alone is the cause of the symptoms I consider that we should in every case first attempt to hold the kidney in its proper position by such a mechanical support. If the apparatus fails it is then time to consider the question of an operation. Young women with movable kidney are often highly

nervous and hysterical, and when operated upon are no better afterwards, even though the kidney remains in its proper place. Why, then, subject such patients to an operation and several months of invalidism when we can keep a wandering kidney in its proper position by an apparatus? It seems that almost all women will wear corsets, and why not fit them with a corset which is superior in comfort to the ordinary one and which exerts a beneficial effect from properly applied pressure. In an experience of probably two dozen cases, covering nearly two years, I have not had a failure in keeping the kidney in proper position and in relieving symptoms which were due to the misplaced kidney alone.

The propositions which I should like to hear discussed are:

First, Whether such an appliance can keep the kidney in position?

Second, If it can do so, how will an operation be of benefit to the patient?

And, third, If the patient intends to wear a corset all her life, why not wear one constructed on these principles, instead of one which constricts the waist and drags the kidney down?

In conclusion I wish to remind you that the proper adjustment and fit is as important in this apparatus as it is in all other forms of mechanical device. When ordering an apparatus for an orthopedic case, the brace-maker follows your ideas as well as possible, but there is always needed a careful adjustment to make such an apparatus do the work you desire, which adjustment the instrument-maker cannot do properly. So it is also with the fitting of a truss for hernia. Your success will depend upon your ability to properly fit the appliance, and you will get but indifferent results if you leave this important detail to a mere artisan. I presume that any good corset-maker would be competent to construct the apparatus. Sometimes the corset is a little too long in front and rides upwards when the patient sits down. Again the garters which are attached to the lowest portion of the corset and to the stockings may be too long, permitting the corset to ride up the fraction of an inch when in a sitting posture. The bones in the back of the corset may come too close together, bringing pressure over the spinous processes, or be too wide apart, causing painful pressure over the angles of the ribs. Sometimes the apparatus will rub over one or both hips when walking, showing that it is a little too full in this region, and that a dart will be needed to make it fit closely. It is personal attention to such small details which makes the apparatus a comfort and a joy to the patient.

Dr. Charles P. Noble.—I think we all agree that this is very much better than the old type of corset. I am sorry to say that my experience with it has not been that of Dr. Le Conte. At the time Dr. Gallant was here I began to prescribe corsets made to order, the straight front, and my patients were not relieved of their symptoms. I prescribed at least twenty-five, and I could not see, nor could the patients that it made a very great difference.

The difficulty is exactly that mentioned by Dr. Le Conte, that almost all patients who have movable kidney are thin, absolutely straight up and down, and that there is nothing for the corset to act upon. I have never yet succeeded in accomplishing anything with the pads. Last year I operated upon a man who had worn a well-fitting belt with a pad. He had had hemorrhages from the kidney for eight years due to the fact that the kidney was twisted on itself. The artery pumped blood into the veins which would not let it out. This was a good demonstration that pads would not keep the kidney in place. The moment it was stitched the hemorrhage ceased. This last year I have seen decidedly more cases of serious results of loose kidney than I have seen altogether in my previous experience. I have had three cases of hydronephrosis and six other cases of hematuria from loose kidney, all in one year. I agree with Dr. Le Conte that the majority of cases of loose kidney produce no symptoms. If there are no symptoms, and nothing in the urine indicating congestion I am not in the habit of prescribing anything for it. The cases presenting symptoms I have failed to relieve by the use of the corset, but have succeeded by operation.

Dr. Wm. R. Nicholson.—In Dr. Gallant's original paper he said he did not as a rule have the corsets made to order, but that in a certain class of his patients, unable to pay for them, he simply had them buy a corset two inches or two sizes smaller than they usually wore, and he would simply apply that. I have never been able to get a corset that a woman would pay five or six dollars for that would do anything for movable kidney. I think the so-called, straight-front corset does not retain its straight front for more than a week or so. While there is a certain amount of relief, it does not last. There is another point to be considered in the putting on of the corset which Dr. Le Conte did not demonstrate, because the subject is not a case of movable kidney. Not only must the woman raise the abdominal wall, but just before allowing the corset to exert pressure she must see that the kidney is pushed up into normal position. I have found that sometimes the woman will apply the corset, lift up the abdominal wall, but not lift the kidney, and the result is that when the corset strikes the body and exerts pressure upon the kidney it gives pain. These two points, the character of the corset and the fact that the woman does not replace the kidney may account for some of the failures Dr. Noble has had.

Dr. John H. Girvin.—I have had the same experience as Dr. Le Conte in trying the corset two sizes smaller as suggested in Dr. Gallant's paper, but I did not get a very good result. I have employed a pad sewed to the inside of the corset, and in one case I had to have this changed half a dozen times before securing the desired result. The patients also applied the corset in the reclining posture. Not only was it necessary to lift the abdominal wall at the time of applying the corset, but to draw in the breath, drawing the intestines and abdominal contents up under the edge

of the ribs. In a number of patients I have had very good results, and the corset has been worn ever since with much comfort.

Dr. Le Conte.—My experience was the same as yours and Dr. Nicholson's when I attempted to use a ready-made corset two sizes smaller than the patient was accustomed to wear. My results were uniformly poor until this apparatus was devised. When a patient has once worn this corset for a few weeks she is better able to judge of its fit than you are, and always knows when the kidney is retained in its proper position. Such patients become very skilful in the adjustment of the apparatus, just as a hernia patient who has once had a properly fitting truss knows thoroughly what to expect and demand of an apparatus. As far as I can remember I have not had a single patient suffering from movable kidney alone that has not been relieved by this corset. I have had a number of cases in which movable kidney was associated with disease of the appendix, ovaries, tubes, gall-bladder, etc. In these cases I have operated for the particular diseased condition present, and afterwards placed a corset upon the patient with relief from all symptoms. I recall one case particularly, a girl of twenty-one, whom I saw during an acute attack of appendicitis. At the same time I recognized that she had a movable right kidney. Immediate operation was advised and accepted. On opening the abdomen I found the pyloric end of the stomach overlying the head of the colon and the kidney immediately beneath the cecum. The appendix was removed and the patient later fitted with a corset. Since then she has been absolutely and entirely well, and takes every form of exercise, including swimming, horseback riding, tennis, etc., without the slightest inconvenience. I am confident that without the corset the patient would have annoying symptoms from so low a position of the stomach and from the movable kidney. Another case that I vividly recall, a woman of thirty-five, had gall-stone disease with a movable right kidney. At times her attacks were undoubtedly of gall-stone origin, and at others the symptoms were referred entirely to the kidney. In this patient a cholecystotomy was done, and she was later fitted with a corset, with perfect relief from all symptoms. The price of the corset which was shown varies from perhaps eight dollars to fifteen, according to the material used.

Dr. W. A. N. Dorland reported

TWO CASES OF CESAREAN SECTION.

Case I.—Emma M., twenty-two years of age, was admitted to the Maternity Ward of the Philadelphia Hospital on the ninth day of August last. She gave the following history: She had always been healthy. Puberty had occurred at eleven years and menstruation had always been regular. On April 26, 1901, she was delivered of a child after the operation of decapitation had been found necessary, forceps having been first used. She was in labor at term, when admitted to the hospital, and she stated that forceps had been applied unsuccessfully by the physician in at-

tendance. When admitted she had been in labor eighteen hours, and the membranes had been ruptured ten hours. An examination revealed a soft systolic murmur at the apex. The fetal head was presenting in the R. O. P. position; the os was well dilated; there was an immense caput succedaneum; the pains were severe and almost tetanic, with no appreciable effect upon the position of the head. Pelvimetric examination gave the following measurements: Between the anterior superior iliac spines, 25 cm.; between the crests, 26 cm.; external conjugate, 15½ cm.; internal conjugate, diagonal, 10½ cm.; between the trochanters, 30 cm.; circumference of the pelvis, 87½ cm. Urinary examination gave a specific gravity of 1020, acid reaction, no sugar, some red-blood corpuscles, no casts, and a thin ring of albumin.

In the hope of avoiding a more serious operation the axis-traction forceps was applied but was removed in a few minutes as impracticable. The patient was then removed to the operating room and prepared for abdominal section, which was performed at 10 o'clock in the morning. A Sänger operation was performed, a living child extracted, and the uterine wound closed with interrupted silk sutures. The patient's condition immediately after the operation was good, and after an uneventful convalescence she made a perfect recovery. The baby was found to be suffering from a fracture of the skull at the base, and died at seven o'clock the evening of the operation, nine hours after delivery.

Case II.—Elizabeth S., a colored girl, sixteen years of age, was admitted to the Maternity Wards on the thirteenth day of August. She gave a history of having always been healthy, but stated that her father, mother, four brothers, and four sisters were all dead. The causes of their deaths were unknown to her. Menstruation had ceased about the middle of November. The girl was well nourished and apparently healthy, though much undersized. Examination made on the date of admission showed a presentation of the fetal head in the R. O. P. position; the os was slightly dilated, permitting the introduction of one finger. The fetal head rested well above the pubic brim, which was so out of proportion to the size of the fetal head that the latter projected considerably beyond the symphysis. The following pelvic measurements were noted: Between the spines, 17 cm.; between the crests, 20 cm.; external conjugate, 15½ cm.; internal conjugate, diagonal, 11 cm.; right oblique diameter, 17 cm.; left oblique, 17 cm.; between the trochanters, 26 cm.; circumference of the pelvis, 75 cm. It was recognized that spontaneous delivery would be impossible, and as the term of gestation was about completed it was decided to allow the girl to fall into labor. This she did on August 23, the pains beginning at ten o'clock in the morning. I was summoned at 11:30 o'clock at night and found the os well dilated and the cervix obliterated, with the membrane bulging well down into the vagina. There had been no attempt at engagement of the head which rested upon the pelvic brim. At 12:30 A.M., on the 24th, the abdomen was opened, a living child extracted and the

uterine wound closed with silk sutures. The child weighed 6¾ pounds. The stitches were removed from the abdominal wound on the morning of the 31st of August and the line of incision found clean. The patient made a good recovery. In both of these operations I was ably assisted by my resident surgeons, Drs. Schwerin, Rhein, and Schumann.

Dr. JOHN H. GIRVIN reported a case of

RUPTURED UTERUS, WITH PRESENTATION OF SPECIMEN.

I present this case on account of the comparative rarity of rupture of the uterus, and because of an interesting feature in the history, which I think had a decided bearing upon the condition. The woman was colored, aged twenty-three; housewife. Fell into her fifth labor February 23, at an early hour in the morning. She was living in the country at that time. A physician was summoned who found labor progressing very slowly, administered ergot, and left. He returned about noon and found the patient in very severe, almost constant pain. Examination showed an impacted shoulder presentation with head on right side. A consultant was called who performed version and extraction under ether. "They felt that something was wrong," and upon examination immediately after they found the intestines protruding into the vagina. The patient was immediately hastened to the train and brought into the Presbyterian Hospital, where I saw her a little before six o'clock in the evening. When brought into the hospital she was pulseless and was bleeding quite freely. Stimulants were administered and her condition somewhat improved. By the time I saw her, about an hour later, it was possible to feel the pulse, but impossible to count it. I found by examination, upon first introducing my hand into the vagina, a large mass which turned out to be a portion of the posterior lip of the cervix, also a large loop of intestine and a handful of clot. Active bleeding was going on which it was impossible to control by pressure or by clamping. The patient was immediately anesthetized, the abdomen opened, and the abdominal cavity found to be filled with clots and some free fluid blood. The lower uterine segment was torn almost into shreds, and the broad ligament and vaginal wall were also badly torn. The remaining attachments of the uterus were quickly severed and the bleeding vessels ligated. The shreds of peritoneum which we could get together were stitched rapidly over the stump. The patient reacted during operation under an infusion of 1,700 ccm. of salt solution, the pulse reaching 160; but she collapsed almost immediately after being taken from the table and died within an hour.

This case, it seems to me, demonstrates first, the danger of giving ergot in labor, particularly when there is obstruction; second, the disadvantage of allowing labor to progress without determining the exact position as early as possible. It demonstrates further the fact noted in almost all these cases, that the severe laceration develops on the side on which the head lies in shoulder presenta-

tion.　There was no question of the method of procedure when
I saw her as there was no possibility of controlling the hemor-
rhage without immediate operation.　You can see that the cervix
was torn into shreds.　There are three distinct tears, probably
done at the time of delivery.　I neglected to find out whether the
child was living at the time of delivery, or its subsequent history.

Dr. George E. Shoemaker.—The remarkable thing about the
case was the amount of laceration which could occur in a case of
the kind.　I was astonished to see the extent to which the perito-
neum and broad ligament had been stripped off of the uterus and
the almost complete tearing of the uterus away from the vagina.
There was also very extensive laceration of the floor of the pelvis.

TRANSACTIONS OF THE
OBSTETRICAL SOCIETY OF LONDON

Meeting of June 16th, 1903.

The President, Edward Malins, *M.D., in the Chair.*

Continuation of discussion of

DECIDUOMA MALIGNUM.

Dr. Galabin said that he had from the first been a believer in
the view that the so-called deciduoma malignum is the result
of pregnancy, and that it is a fetal epithelioma implanted upon
the mother.　He had listened therefore with great satisfaction
to the convincing demonstration which Dr. Teacher had given
of both these propositions.

He had been himself convinced by the relation, not so much
to pregnancy, as to vesicular mole.　While pregnancy was com-
mon, the pregnancy of vesicular mole was estimated as only about
1 in 2000 pregnancies.　Not more, therefore, than about one
woman in every 20,000 at the most would have had at any given
time a vesicular mole within a year.　But in deciduoma malig-
num, vesicular mole was the antecedent in something like half the
cases, and this proportion had been maintained from the earliest
record up to the present.　It was possible on this basis to calcu-
late by the mathematical theory of probabilities what was the
chance against the vesicular mole having occurred within a year
before half of the cases of deciduoma malignum, if there was no
causal relation between them.　The result was that the probability
increased very rapidly, as the number of cases increased.　Within
eight or ten cases, a probability of a million to one was reached;
and when the cases amounted to 40 or 50, the probability was
an unimaginable number of billions of billions to one.

He contended that there was already, at the time of the dis-
cussion in the Society in 1896, ample demonstration that there

was a causal relation between vesicular mole and deciduoma ma-
lignum; since out of 40 cases then recorded vesicular mole had
preceded in 18. When the number recorded had reached 90,
the number preceded by vesicular mole was 49. The relation to
pregnancy in general would hardly be denied, if that to vesicular
mole were admitted, especially since the disease more often fol-
lowed an abortion than a full-term pregnancy. He was surprised
therefore that, at the former debate, Dr. Spencer was the only
speaker who argued decidedly in favor of the connection.

The existence of a similar structure in some cases of sarcoma
of the testis was then quoted as an objection to deciduoma ma-
lignum being a result of pregnancy. But if such a structure were
found only in tumors classed as embryomata, from their resem-
blance to the imperfect development of an ovum, he thought that
this was not an objection, but an argument in favor of deciduoma
malignum in the uterus being derived from a fertilized ovum.

He did not consider that embryomata were derived from an
included ovum, the brother or sister of the individual who bore it.
Such a brother-ovum was generally attached on the surface, and
there was no reason why it should be in the testis or ovary, rather
than elsewhere. He thought that they were instances of im-
perfect parthenogenesis, or attempt at development of germ
plasm without union of the sexes. The germ plasm was sup-
posed to be nominally concentrated in the testis and ovary, and
therefore such tumors generally occurred there. But it was con-
ceivable that there might be some aberrant fragment of it in such
a situation as the mediastinum.

Even if a structure resembling deciduoma malignum were
found in other parts of the body, this would be no argument
against its specificity in the uterus, or its being the result of
pregnancy there, unless it could be shown that in the uterus, de-
ciduoma malignum occurred quite outside the age of possible
pregnancy. Since malignant disease of the body of the uterus
was much commoner after the menopause than before, deciduoma
malignum, if it were an ordinary tumor, should be found long
after the menopause. But, on the contrary, the average age for
it was 31, just the middle of the period of fertility. Although
cases had been recorded up to the age of 55, and as much as two
years after the menopause, this was obviously no proof that they
were not the result of pregnancy, since the disease might be
latent for a time.

It was a further step to show that the tumor was a chorion-
epithelioma. The chief proofs were the continued vitality of villi
after death of the embryo, as shown at the last Meeting by a sec-
tion of ovum retained five months in utero; the identity of appear-
ance of the syncytium and the cell masses of deciduoma malignum
with the syncytium and cell masses seen in early pregnancy, and
especially in vesicular mole; the continuity of the syncytium with
the syncytium of the villi when villi were present in the tumor;
and the few cases recorded in which actual villi were present, not

only on the primary growth, but in metastases. He had shown at the last meeting a section of vesicular mole, with cell masses as well as syncytium, resembling those of deciduoma malignum. The same was shown still better in the beautifully stained sections exhibited by Dr. Stevens, one from Dr. Galabin's case of deciduoma malignum. The size and appearance of the cells, their nuclei, and the karyokinetic figures in them, were identical.

He did not, however, think it advisable to change the name, since, if a name were in general use, it did not matter much that its derivation was erroneous. No one wanted to change the names of decidua reflexa or decidua serotina. In the term of deciduoma malignum had been comprised a definite clinical group of tumors, characterized not only by their causation, but by their high malignancy and tendency to form metastases, both in the neighborhood and in the viscera, and to lead to extensive necrosis and formation of blood spaces. Some few of these showed only cells and no syncytium, and had the appearance of sarcoma. They were therefore certainly not syncytioma, and it was difficult to show them to be chorion-epithelioma, although he believed that they might be such in their origin.

He did not think that Dr. Teacher's figures showed so conclusively that the cell masses of the tumor were directly derived from the Langhans' layer of the villi. The point could best be studied in vesicular mole, which showed similar cell masses. If these were so derived, the first step ought to be the formation of a cluster of cells, covered in a cap of syncytium. He had occasionally seen this, but more often the cell masses appeared to be separated from the villus by the syncytium. If the syncytium and Langhans' layer were both modifications of the fetal epiblast, it seemed probable that one might be converted into the other, and that syncytium might become differentiated into cells. Intermediate appearances might be seen, both in vesicular mole and in deciduoma malignum.

He thought that the form of deciduoma malignum, in which only cells and no syncytium were seen, and which resembled sarcoma, might be an ultimate development of the more common form.

It seemed chiefly to be found in advanced cases, in which the patient died from the disease without operation. This was so in a case mentioned at the last meeting, and in the case which was at first under his care, a section from which was shown by Dr. Horrocks. Dr. Teacher had pointed out that neither cell masses nor syncytium showed any intercellular substance or vessels. But in the infecting border of the growth very small groups of cells could be seen springing up in the midst of the stroma, and small fragments of syncytium, and these might be reduced to single cells, so that the general appearance resembled sarcoma. Thus if necrosis occurred of the original cell masses and syncytium, only a sarcomatous looking structure might be left. It would be of interest to know from those who had worked at cancer para-

sites, whether the bodies regarded as parasites were found or not in deciduoma malignum. It was presumed that the only parasitism in the disease was that of the fetal structures upon the mother; but it was not impossible that microbic parasites might infect the placenta.

The elucidation of this point would be of value in the investigation of the origin of cancer in general.

Dr. Herbert Spencer said that too much attention had been devoted to the name. For his own part, he preferred the name given by Karg to Sänger's case—deciduoma malignum : the object of a name was to act as a label, and not as a definition, and deciduoma malignum served the purpose of a distinctive label sufficiently well. He thought there was some inconsistency in Dr. Teacher's deprecating the inclusion of the disease in the classes of sarcoma or carcinoma, and then calling it "chorion-epithelioma."

With regard to the pathogeny of the disease, he thought it was absolutely established that it arose from the epithelial covering of the chorionic villi. In the discussion at the Society in 1896 (Obst. Trans., 1896, p. 181), he had opposed the view of Drs. Kanthack and Eden, and had given evidence that the disease originated in the products of conception, and in the *Quarterly Medical Journal* for July, 1896, he had written a paper, giving the principal facts of forty cases of deciduoma malignum, and regretted that these facts had not been allowed to prevail against the theories of the critics. He had on those occasions drawn attention, amongst other points, to the striking fact that in at least 45 per cent of cases, the disease followed a hydatidiform mole, which itself shows overgrowth of its epithelial covering, and had alluded to Apfelstedt and Aschoff's case as proving, if the evidence were corroborated, the origin of the growth from chorionic villi. The corroboration has been forthcoming in several cases published since that date, which in his opinion, clearly prove that these growths arise from the epithelial covering of the chorionic villi. The excellent demonstration given by Dr. Teacher would help to promulgate that view. There was one difficulty which he did not think the demonstration met satisfactorily, namely, the difficulty of distinguishing between an ordinary sarcoma and a deciduoma malignum in cases which contained no syncytium.

With regard to the structures resembling "chorion-epithelioma," met with in teratomata, he had not seen a specimen, and would prefer to wait before expressing an opinion. It did, however, appear strange that chorionic villi or the epithelium of the villi, or only structures which developed into chorionic villi, should be "included" in the body of a fetus.

Dr. Eden observed that several of the preceding speakers had taken occasion to deprecate the trend of the 1896 discussion upon deciduoma malignum, and to dissociate themselves from the decision, which had been reached, he would not say by the Society, but by the Special Committee appointed to investigate the cases

laid before the Society upon that occasion. For his own part, he avowed himself an unrepentant sinner, in so far as that discussion and report were concerned, and he reminded Dr. Spencer, that although he (Dr. Spencer) had just told them that he had always believed in the fetal theory of deciduoma malignum, yet he had signed the report of the Committee, which stated that the cases were sarcomata. After reading once more the reports of the discussion and the papers laid before the Society in 1896, he really believed that in view of the facts then before them, the decision of the Special Committee was a sure one, and under the same circumstances he would be prepared again to take up the same position. (It must be remembered that at that time the position of this great question was very different from to-day.) He might briefly indicate the then position as follows: firstly, there was no doubt that in their broad general characters, the cases recorded at that time bore a close resemblance to sarcomata, viz., in their age incidence, in their dissemination by venous channels, in the total absence of lymphatic invasion, and microscopically in the absence of connective tissue stroma, and the presence of masses of multinucleated protoplasm resembling giant cells; secondly, the clinical evidence of connection with pregnancy was in a considerable proportion of the then recorded cases unsatisfactory; thirdly, the theory of Marchand as to the identity in microscopic character of the tumor elements with those of the chorionic epithelium was new, and unsupported by independent evidence; fourthly, the actual demonstration of the development of the tumor from chorionic villi had not been forthcoming, indeed, it was open to doubt whether villi had then been proved to occur in these tumors at all; and, lastly, syncytial elements then believed to be the essential elements of the tumor were shown to occur in the male subject, where origin from chorionic epithelium was out of the question. In the paper he had read to the Society in 1896, he had indicated that in his opinion the theory of Marchand could only be satisfactorily proved by demonstrating the actual development of the tumor from structures definitely recognizable from placental relics. The condition, he admitted, had been amply met by a number of cases since, and the importance of this point could not be too much emphasized, for all other considerations were subordinate to it. The new growth, having been definitely traced back to the normal tissues from which it arose, its origin must be regarded as settled. But the position since 1896 had changed in other respects, all of which lent support to this view. A large body of expert pathological opinion had grown up in support of the theory of Marchand, which Fellows of that Society, most of whom were not pathological experts, could not question. Again, the puzzling class of cases in which the primary disease occurred in the vagina, the uterus being free from disease,—cases which had been a serious stumbling block to them in 1896,—had now received adequate explanation. Schmorl and Veit had shown that normal villi and fragments of chorionic epithelium could be de-

ported by the blood stream to distant parts, and these either be-
come absorbed or possibly undergo malignant changes, resulting
in the development of disease in remote organs. This interesting
class of cases was now a large one, and instances had been re-
ported where primary chorion-epithelioma had occurred in the
vagina, labium majus, tube and ovary, lungs and brain, the uterus
in each case being free from disease.

It was therefore evident that the difficulties present in 1896 had
now been removed. It was worth while for the Fellows to re-
member that although the decision of the 1896 Committee had
been erroneous, yet in regard to two important matters, sugges-
tions made in that discussion had actually now received general
acceptance. In the short paper which he (Dr. Eden) had then
read, he had expressed the opinion that the syncytial and cellular
elements in deciduoma malignum had the same origin, the syncy-
tial masses being formed by degeneration and fusion of the cellu-
lar elements. This view was now accepted. And not only so, but
Peters had shown that in the human ovum the physiological pro-
totype of these elements bore precisely the same relation to one
another; the chorionic epithelium was at first entirely cellular, but
on the cells coming in contact with the maternal blood, degenera-
tion and fusion of cells occurred, producing what he called the
plasmodial or syncytial layer.

In yet another respect the 1896 discussion had made an im-
portant contribution to the subject, and that was in pointing out
the fact that syncytial masses, similar to those found in deciduoma
malignum occurred in malignant testicular growths, whose origin
from placental relics was out of the question. This fact had re-
cently been rediscovered by Schlagenhaufer and had caused a
great deal of perturbation in the minds of their German col-
leagues. Schlagenhaufer's case was clearly a teratoma, while
Kanthack had regarded the specimen shown to the Society in
1896 as a sarcoma. It was a mystery to him why this observation
of Schlagenhaufer's should be regarded as in any way affecting
the validity of Marchand's theory of chorion-epithelioma; that
theory rested upon actual demonstration of the histogenetic origin
of the growth, and no such observations as Schlagenhaufer's could
upset it. Yet this latter authority had proposed that we should
regard as teratomatous, *i.e.*, as due to the "inclusion" of an ovum,
a large proportion of the accepted cases of chorion-epithelioma in
the uterus and elsewhere. This appeared to him (Dr. Eden) to
throw the subject into needless confusion, for the "inclusion"
theory was not required to account for chorion-epithelioma, unless
cases should ever be proved to occur under circumstances in which
pregnancy could be scientifically excluded.

In conclusion, he said that it appeared to him that the patho-
genesis of this growth, having been satisfactorily settled, the only
questions remaining were clinical questions. For instance, we
were quite unable to explain why these growths varied so greatly
in malignity, why those cases in which villi were found in the

tumor should be less malignant than others, why cases where the primary growth was in the vagina were less malignant than the uterine cases, why metastases should disappear after removal of the primary growth alone, and lastly, why in one remarkable case recorded by Herschmann, partial removal of the primary growth should be followed by disappearance of the remainder and complete recovery.

Our attention should be directed to these points in future.

Dr. McCann said he ventured to join in the discussion because he had three cases of "deciduoma malignum" under his care during a comparatively short space of time.

The first was a woman aged 35 years, who was admitted to the Samaritan Hospital in July, 1901, suffering from continuous hemorrhage from the vagina for three and a half months. This hemorrhage was alleged to date from a miscarriage, but the history of the passage of ovuline structures was indefinite. She was extremely anemic. Under anesthesia, on July 17, the uterine cavity was dilated, and a distinct bulging was felt at the upper and back part. This was covered by smooth mucous membrane. On attempting to separate the lower portion of the tumor, the finger could be passed into the uterine wall, and the surrounding softened tissue suggested a malignant growth.

The uterus was therefore removed by vaginal hysterectomy. The patient has remained in good health since the operation without any evidence of recurrence.

The second was a woman, aged 46 years, who had had six children, the youngest being aged 9 years.

Her menstrual periods were regular, scanty, lasting two days.

In August, 1901, she had an attack of bleeding, clots and fluid blood being passed per vaginam. This bleeding ceased and did not recur until the end of December, 1901. After this date there was daily loss of blood from the vagina. She was admitted to Hospital on March 19, 1902. On examination she was found to be extremely anemic. The uterus was enlarged, mobile and painless. The fundus could be felt to have reached to the midpoint between the umbilicus and the symphysis pubis. She was anesthetised, and on introducing the finger into the uterine cavity, the wall was found to be lined by a series of irregular nodules undergoing necrosis on the surface. A bluish flattened nodule, about the size of a six-pence was seen in the anterior vaginal wall. As this was evidently a secondary growth, no operation was attempted.

The uterine cavity was swabbed out and the patient returned to bed. For a time her general condition improved, but later increasing weakness accompanied by dyspnea supervened. The physical signs in the lungs indicated secondary deposits. She died on May 23, 1902. A post-mortem examination demonstrated the existence of secondary nodules in both lungs.

The third patient was aged 53 years, and had ceased menstruating for eighteen months. This case is already fully reported in the *Journal of Obstetrics and Gynecology of the British Empire*

for March, 1903. The uterus was removed by vaginal hysterectomy, and its cavity was found to be completely filled with blood and clot. Her last pregnancy terminated nine years previously at the third month. She was admitted to the Samaritan Hospital in March, 1902. These three cases demonstrated three distinct clinical types of uterine new growth. In the first case the growth was polypoid and circumscribed; in the second, it was diffused throughout the uterine mucosa, and in the third the uterine cavity was entirely occupied by blood clots. The last type has been described under the terms angio-sarcoma, cavernous sarcoma and sarcoma teleangiectodes. Dr. McCann thought that in the future such cases would be shown to be of the nature of "deciduoma malignum." They seem, moreover, to be of comparative rarity.

The description of specimens where the disease had been actually shown to originate from the coverings of the chorionic villi has completely revolutionized our ideas as to the etiology. For those cases where the occurrence of a previous pregnancy is difficult to prove the theory that "fetal relics" have persisted in utero seems to be a fitting explanation. The rarity of the disease appears to have been exaggerated, for no less than six cases have been observed at the Samaritan Hospital during a comparatively short period.

The degree of malignancy appears also to vary in different cases. Although it is true that some types are especially malignant, there are others in which this character is not so well marked. In all probability the polypoid or circumscribed type is the least malignant, thus resembling polypoid sarcomata of the uterine mucosa.

If it be proved that the secondary growths do disappear, then we are justified in dealing surgically with cases in which secondary nodules exist in the vagina, unless the general condition of the patient contra-indicates any operative interference.

Dr. McCann did not think that an adequate explanation had been found for all the cases grouped under the title of "deciduoma malignum," but in attempting to solve the question, he advocated careful and accurate records of cases without having in view the support of a particular theory as to the causation of the disease.

Dr. LOCKYER said it was no small satisfaction to find that his own interpretation of the nature of the growth which has passed under the name of "deciduoma malignum" coincided with Dr. Teacher's views.

In January, 1902, Dr. Lockyer read a paper before this Society on "A Case of Chorio-epithelioma with Pulmonary Metastases," and by a series of lantern slides he traced the origin of the syncytial masses and Langhans' cells back to the walls of the chorionic villi and endeavored to point out that if we accept the fetal trophoblast as the precursor of Langhans' layer of the syncytium the term "deciduoma" is a misnomer for a growth containing these elements in its composition.

For such growths a name should be chosen which will indicate their true origin; and after careful study of eight specimens of this disease Dr. Lockyer chose the term of chorio-epithelioma for his two published cases as being the most fitting nomenclature for this purpose. Dr. Teacher had gone further than Dr. Lockyer was formerly prepared to go by concluding that every so-called deciduoma malignum was a chorio-epithelioma. Dr. Lockyer had stated that this experience led him to the conclusion that there were cases in which the histological features differed in essential details from chorio-epithelioma. The specimens which led Dr. Lockyer to this conclusion were prepared by Mr. Corrie Keep, who kindly allowed Dr. Lockyer to make drawings from them which were shown at the demonstration in January, 1902. Dr. Lockyer has again examined these specimens and with his now larger experience in the study of these growths, obtained from the examination of five more specimens since his paper was written, he has no hesitation in saying that although syncytium is not well represented, the cells described by him as "modified connective-tissue cells like those found in normal decidual membrane" are in reality derivatives of Langhans' layer.

In accord with this conviction these growths fall into the category of chorio-epithelioma in spite of the fact that no definite syncytium is present. In other words syncytium is not the leading features of these tumors. Sänger's original sarcoma deciduo-cellulare has been shown at this Society by Dr. Teacher. It is a typical chorio-epithelioma as proved by the presence of both syncytial masses and Langhans' cells.

The only distinction which Dr. Lockyer is at the present time prepared to insist on as existing between these growths, is that they contain syncytial derivatives and Langhans' cells whereas others contain Langhans' cells while the presence of syncytium is difficult or impossible to prove. His previously expressed opinion that some of these growths could be referred to the maternal decidua he now regards as a point which still requires demonstration, but which may for the present be left an open question.

In the discussion on Dr. Lockyer's paper, Dr. Horrocks asked the question, "Could Dr. Lockyer say that in all cases of this malignant growth which had followed vesicular mole there had been syncytial elements?" As far as his experience went Dr. Lockyer answered this question in the affirmative. Four of the eight cases known to Dr. Lockyer, and in which he found syncytium, followed vesicular disease of the chorion. Dr. Horrocks' own specimen proved this point. Dr. Lockyer had examined it carefully and found abundant evidence of the syncytium being represented, so that his statement that "the malignant sequela of a vesicular mole is invariably a syncytioma" needs no alteration. Dr. Lockyer wished, however, to again emphasize the fact that syncytium is not the essential feature of a chorio-epithelioma, as Dr. Horrocks seemed to think.

A short abstract of the case shown by Dr. Lockyer at this meeting of the Society was as follows:

Mrs. V., æt. 28, twice pregnant. The first pregnancy ended in the expulsion of a hydatidiform mole; the second ended in the birth of a healthy child at term. One month after the child was born the mother developed a swelling in the right labium majus and another in the inguinal glands; subsequently, another deposit was found in the vagina. The external growths were opened under the impression that they were pyemic, but only blood clot and necrosed tissue came away

Death occurred eleven weeks after confinement. The symptoms and course of the disease during the patient's stay of seven weeks in the Hospital for Women at Brighton, were mainly those of septicemia, signs of pulmonary consolidation supervened only a fortnight before death. The primary growth was confined to the body of the uterus; the uterine walls were not perforated, the adnexa were healthy, *there was no infiltration of the parametrium such as is found in uterine sarcomata.* There were secondary growths in the lungs, pancreas, kidney, and vagina. The primary tumor and all the secondary deposits showed syncytial derivatives and Langhans' cells, the syncytium being most abundant in the pancreatic metastases.

Dr. H. Russell Andrews showed two specimens of Chorio-Epithelioma. The first was an old specimen which had been in the museum of the London Hospital for many years, labeled "cancer of the uterus." Microscopical examination proved it to be a chorion-epithelioma. The second was shown before the Society in 1886 by Dr. Lewers, as a specimen of circumscribed sarcoma of the uterus with secondary deposits in the vagina and lungs. Dr. Lewers had kindly allowed Dr. Andrews to redescribe it. Sections showed typical chorio-epithelioma structure. He commented on the fact mentioned by Dr. Haultain, that in some cases the growth seemed to be killed by coagulation of the blood round it, and said that in the majority of cases, the extreme malignancy and rapid development of metastases were due to the fact that although the growth always occurs in blood-vessels, it does not cause thrombosis. This is probably to be explained by the presence of syncytium, which seems to have, with endothelium, the property of not coagulating blood with which it is in contact. Although in some sarcomata, especially in those which are sometimes called peritheliomata, cells are often seen, which resemble syncytium, yet the vacuolation, which is so characteristic of chorio-epithelioma, is not seen in these.

The complete absence of vessels in chorio-epitheliomata is also an important point in distinguishing these tumors from sarcomata, in which, vessels, although often ill-formed, can always be found.

Dr. Hebb said that in the one case which had passed through his hands, while the general aspect was that of a poly-cellular sarcoma, there were appearances reminiscent of epithelial cancers.

The microsections exhibited certain histological features, which had not been alluded to by previous speakers; there were attempts, sometimes apparently successful, at the formation of new blood-vessels, the existence of irregular mitoses, and the presence of cell-inclusions or "cancer-bodies," the last two being of common occurrence in carcinomata.

He thought that eventually it would be demonstrated that the maternal and fetal structures participated as to the side of origin of these growths, sometimes the one, sometimes the other location having the greater share.

Dr. Teacher in reply thanked the Society for the exceedingly kind manner in which his paper and demonstration had been received. The keen interest manifested by members in the discussion of the subject had been most gratifying.

The results also were very pleasing to him inasmuch as the views which he had set before the Society appeared to have met with very general approval. In fact, the remarks of various speakers, and especially the summing up of Dr. Eden left very little in the way of criticism for him to answer. Dr. Teacher felt himself bound to express his approval of the "unrepentant sinner" attitude of Dr. Eden in defending the "decision" of the Society in 1896. The discussion on that occasion was a good one, and the conclusions arrived at were most natural under the circumstances, having in view the material before the Society. Dr. Teacher's criticism of that discussion had been written without knowledge of the facts stated by Dr. Eden, that only the preliminary notice of the case of Apfelstedt and Aschoff was before the meeting of 1896. At the same time, even admitting that Dr. Teacher adhered to his opinions that the Society had hardly appreciated the strength of the case, which Marchand had worked up from the histological resemblances of the tumor and the pathology of hydatidiform mole, and that it was a pity they had delayed the consideration of the new evidence for so long. But there had been one advantage in that delay. The case which had been brought before the Society by the late Professor Kanthack was at that time absolutely inexplicable, and he did not wonder at the influence which it had exercised over the minds of the members of the Pathological Committee. He had always felt a doubt as to the right of Professor Kanthack to describe such a curious tumor off-hand as a sarcoma; but, owing to the unfortunate circumstance (namely, the early death of Professor Kanthack), the materials for a criticism of his view were wanting until the rediscovery of this kind of tumor by Schlagenhaufer. Doubtless the members of the Society would say that there was not yet a satisfactory explanation of the tumor of the testis; but he thought that they must grant that it was no longer justifiable to call it sarcoma; and also that it could not be held, in the face of the other evidence we now possessed, to affect the specificity of the ordinary chorion-epitheliomata.

Dr. Teacher briefly reviewed the various interpretations which

were now being offered of those embryomata (or whatever they might be called), the relative merits of which he felt must be left for future consideration.

In reply to the question whether placenta had ever been found in an undoubted teratoma, Dr. Teacher quoted the case of Maydl. Laparotomy in an anemic but well-developed man of 19 years revealed a tumor lying between two folds of the root of the mesentery. It consisted of a well formed trunk and limbs without a head, but in place of it a long tuft of hair. This imperfect fetus was enclosed in an amniotic sac; a thickening of the amnion connected with the superior mesenteric artery showed the histological structure of placenta. There was also a case in a sheep described by Rathke in 1830, in which a female fetus was attached to the head of a male fetus by an umbilical cord, which passed into the skull and ended in a well-formed placenta growing on the dura mater.

Turning to certain points raised, Dr. Teacher admitted that limitations of time had caused his opening statement to contain more of assertions than of proof, but, on the other hand, the critics who had raised that objection seemed to have failed to follow the demonstration of the relationship of the normal placenta and chorion-epithelioma through the simple hydatidiform mole and malignant mole, the series of slides comprising which could hardly have been made more complete.

He also protested against the questioning by two of his critics of the value of evidence simply and solely because it had been "made in Germany." His experience of our German colleagues was that they were a most kind, courteous lot of gentlemen, and as keen and conscientious seekers after truth as any men. In his inquiries he had encroached freely upon their time, and they had given it to him ungrudgingly. The race doubtless was no more free than any other from inaccurate and unreliable members, but his own observations had led him to the opinion that the latter got their deserts as surely and swiftly in Germany as anywhere else.

The assertion that the view of Veit remained purely hypothetical was based upon the fact that Dr. Teacher, in December, 1902, asked Professor Veit if a case had yet been found which demonstrated the sequence of events which it supposed. He understood Professor Veit's reply to be negative. On the other hand, in the 188 cases summarized, the presence of villi was noted in 33. A number of these were old malignant moles, not examined microscopically, but there remained a large number of cases in which the origin of the tumor from the chorionic epithelium had been directly demonstrated. Twenty-eight of the cases (including the malignant moles, 11 in number) followed molar pregnancy, 4 abortion, and 1 (Langhans' No. 2) delivery at term.

That the cases in which villi were found, excluding malignant moles, showed a relatively low degree of malignancy was a fact He could not explain it. The matter is considered in the paper.

DR. FOTHERGILL spoke of many cases in which the connection with pregnancy appeared to be absent. Excluding the tubal cases, there remained 181 which Dr. Teacher had synopsized. In 16 of these the occurrence of a preceding pregnancy was not clear from the history. In 2 of these villi were present; in 4 cases no history was obtained, either because they were cerebral cases, the nature of which was discovered only at the autopsy or for other valid reasons. Of the 10 remaining cases, 9 occurred in women between 24 and 44. Was it possible to exclude pregnancy in those cases? In many cases the disease was continuous with the pregnancy; this fact should explain the absence of a distinct preceding pregnancy in most of those 9 cases. The most probable explanation to Dr. Teacher's mind of McCann's case was renewed pregnancy. There were several cases in women of nearly the same age who had not been pregnant for many years and then developed tumor. In 8 out of 9 cases over the age of 50, the preceding pregnancy was molar. As an example might be taken the case of Gunther, recently reported by Marchand, a photograph from which was included in Dr. Teacher's demonstration. The patient was 53¼ years old; her last child was born in her thirty-ninth year, and then after 13 years she had a hydatidiform mole, which passed on into chorion-epithelioma.

An apparent menopause was recorded in two clear cases besides that of McCann. An explanation which might apply to all these long interval cases had been offered by Marchand: It was well known that portions of epidermis included in the closure of some of the embryonic clefts might lie latent 10 or 20 years, or even longer, and then develop into tumors. In view of that he thought there was nothing strange about portions of trophoblast lying latent 3 or 4 years, and then springing into renewed activity. The hypothesis that those cases might be really of teratomatous nature, Dr. Teacher regarded as quite unnecessary.

Cases of chorion-epithelioma without syncytium had been mentioned. There were three cases in which the typical sprawling masses were absent, but none of these could really be said to contain no syncytium, as they all showed syncytial derivatives, like the syncytial wandering cells. These cases and the "pure syncytial" cases, all of which actually contained individual cells, although not typical Langhans' layer cells, Dr. Teacher would regard as varieties of no great importance in view of the relationship which existed between the two layers of the chorionic epithelium. In all of his tumors the relative amount of the different elements varied considerably in different parts of the growth.

With regard to the question of nomenclature, Dr. Teacher said that "syncytioma" was a bad name, because the syncytium is not *the* characteristic element of chorionic epithelioma. The Langhans' layer cells and large individual cells of intermediate type were equally characteristic. Almost any feature of the growth taken by itself could be paralleled from other tumors, but not the combination of features. Lastly, the most characteristic thing

was the physiological prototype. He preferred a name which informed one of the source of the tumor, and he thought that the members of the Society need not be afraid of committing themselves to a particular view. He was pleased to find that in this he had the support of Dr. Eden. The most appropriate name, therefore, was chorion-epithelioma, or, if they preferred it, chorio-epithelioma. He was also in favor of allowing the historic deciduoma malignum as a clinical term—it was so well known and so generally used. Moreover, the view implied in it was so completely abandoned that the term might be said to have ceased to be misleading. If there were a real "deciduoma" it had not yet been demonstrated; but when so experienced a pathologist as Chiari was inclined to reserve his opinion, Dr. Teacher thought they need not dogmatize, but neither need they "hedge."

Meeting, Wednesday, July 1, 1903.

The President, EDWARD MALINS, M.D., *in the Chair.*

MR. SYDNEY STEPHENSON opened a discussion on

OPHTHALMIA NEONATORUM, ITS ETIOLOGY AND PREVENTION.

He remarked that ophthalmia neonatorum was the cause of more blindness than any other local disease of the eyes, excepting atrophy of the optic nerve. Competent authorities estimated that it accounted for upwards of 10 per cent. of the cases of blindness. In the United Kingdom alone the individuals blinded by the disorder probably represented a yearly burden upon the commonwealth of upwards of one-third of a million pounds sterling. Yet ophthalmia neonatorum may be prevented by the adoption of a few simple precautions. Of 1,498 cases of ophthalmia neonatorum, gonococci were demonstrated in 60.17 per cent. Amongst the other micro-organisms sometimes associated with the disease were the following: Pneumococci, Koch-Weeks' bacilli, Morax's diplobacilli, bacteria coli, Klebs-Löffler bacilli, pneumobacilli, pyococci, streptococci, and Micrococci lutea.

The author laid considerable stress upon the bacteriological examination of the pus from the conjunctiva, as the mere clinical diagnosis of the disease lay open to serious fallacies. It was pointed out that infection of the baby's eyes with gonococci might come about in three places: (1) In the maternal passages, either before or during the act of birth; (2) almost immediately after birth, or (3) one or several days after birth. Although the second was by far the commonest mode of infection, yet cases were quoted to show that rarely the eyes might get infected in utero. With regard to prevention, the author voiced the great advantages of Credé's method. The only disadvantage of the method admitted by the author was the almost constant production of an

insignificant conjunctival catarrh. An analysis of cases treated by different agents brought to light the fact that a 2-per-cent. solution of silver nitrate was by far the best prophylactic remedy. Protargol and solutions of corrosive sublimate were good, but inferior to the silver.

Dr. HERMAN said that the mass of evidence collected by Mr. Stephenson clearly showed the superiority of the 2-per-cent. solution of nitrate of silver originally recommended by Credé to every substitute, that had as yet been tried. At the general Lying-in Hospital some years ago several cases of ophthalmia neonatorum occurred, in spite of the routine instillation of corrosive sublimate solution. The 2-per-cent. nitrate of silver solution was then used instead, and cases of ophthalmia at once ceased to occur. He found much difficulty in advising students what to do. The objection to Credé's method was, that it always produced some conjunctivitis. This was really only a trifle, but from a mother's point of view, it was a great thing: and a young practitioner who would give people occasion to say of him that he always did something to newly born children which inflamed their eyes, would be much handicapped in practice: and he could not complain to his patient that he did it lest the eyes should be infected with gonorrhea. He thought that the best thing to teach was that the practitioner should inquire into the presence or not of vaginal discharge: and if there was discharge, or any history or symptoms suggesting the possible presence of the gonococcus, he should use nitrate of silver; but if there was no suspicion of gonorrhea, he should be content to use 1-2,000 sublimate solution, which, as Dr. Stephenson had shown, was a very efficient germicide, although not so powerful as the 2-per-cent. nitrate of silver solution. Dr. Stephenson's careful analysis of the cases in which Credé's method was said to have done harm, showed how hollow all the graver objections were which had been raised against it.

Dr. WALTER SWAYNE said that he wished to emphasize Dr. Herman's point about the young practitioner. Having the supervision of a maternity charity in which, as in all the London hospitals with medical schools attached, the work was carried on by students, he felt certain that the work would fall off if it was found that the use of Credé's method, although it was universally acknowledged to be the best, gave the public the opportunity for saying that the babies got sore eyes in consequence. On this account in the maternity department a weak solution of corrosive sublimate was used instead of nitrate of silver. He also thought it would be interesting to hear the experiences of others in large provincial towns. In his own locality the customs and habits of the mining population lead to the pregnant women being very liable to gonorrheal infection, and consequently a large proportion of gonorrheal ophthalmia would be expected. In his experience, however, and in spite of this, the actual number of cases of true gonorrheal ophthalmia, as endorsed by microscopical examination and bacteriological cultivation was small.

Mr. Teacher Collins pointed out that one circumstance which rendered new-born children liable to ophthalmia was that they secreted no tears. If an irritant were introduced into the conjunctiva of any but an infant's eye, there was at once a rush of tears, which mechanically tended to wash it away. The tears, moreover, had been shown to have a bactericidal action. It was to supply new-born infants with these means of defence, which were developed later in life, that endeavors should be directed. If the conjunctiva immediately after birth was simply washed with water, it had been shown that the number of cases of ophthalmia were reduced, but if a sufficiently powerful bactericidal fluid was used, they could almost entirely be done away with. It was satisfactory to know that the amount of ophthalmia neonatorum was decreasing. In 1885, the number of cases coming to Moorfield's Hospital was about 1 to every 200 patients, now it was about 1 to every 400. Blindness was also decreasing, the last census had shown that though the population of London had largely increased, the number of blind people had decreased. When a case of ophthalmia neonatorum came under his care, he was in the habit of asking, if the mother had been attended by a doctor or a midwife. He was sorry to say that he found nearly half the cases had been attended by medical men. This, he thought, showed that the profession generally did not yet realize the great value of employing prophylactic measures against this disease. Ophthalmia neonatorum was not only preventable, but might be cured without loss of sight, if dealt with sufficiently early and skilfully treated. Obviously, midwifes could not be trusted to undertake such treatment. Unfortunately he found that valuable time was often lost by mothers using lotions suggested by them.

Dr. W. S. Griffith said that his experience at Queen Charlotte's had convinced him, even before he had the advantage of Mr. Stephenson as a colleague, and Dr. Sikes in the Pathological Laboratory, of the undoubted superiority of the silver nitrate, and he regarded the very small percentage of imperfect results not as failures of the method, but as failures in carrying it out; and this was not to be wondered at when one realized the difficulties of disinfection of a little baby's eye-lids, in comparison with the same process in an adult. At the same time in his own practice, he did not use it as a routine procedure in private, being satisfied to employ it in all cases in which he suspected gonorrheal infection, and for the rest he was satisfied to thoroughly cleanse the eyelids, nose and lips with an ample wash with mercuric iodide, 1-1,000 solution, as soon as the head was born, and before the child opened its eyes or attempted to breathe, and he had no reason to be dissatisfied with the results. Dilute mercury solutions, 1-2,000 or 1-4,000 or less, were utterly unreliable. Boracic acid solutions were little better than plain water.

Dr. Cullingworth stated that in advocating legislation for improving the training and controlling the practice of midwives,

he had always regarded the prevalence of blindness due to pre-
ventable causes as one of the strongest and most telling arguments,
and he frequently made use of it, but in doing so he had found
himself seriously hampered by having to fall back upon the sta-
tistics of nearly twenty years ago. The present paper furnished
fresh statistics, but not a whit less startling and convincing than
those collected and published by the Ophthalmological Society in
1884, and would be extremely useful even from that point of view
alone. With regard to the modes of infection enumerated by the
author, no doubt, as he himself had said, the ordinary source of
infection was the presence of gonorrheal secretion in the vagina
of the mother at the time of parturition, but this was not the only
source. He (the speaker) remembered being present many years
ago at a Cesarean operation, resulting in the birth of a living child,
which in the course of a day or two presented all the symptoms of
an acute purulent ophthalmia. He was not sure that he could
quote chapter and verse for the statement, for he was uncertain
whether the case had been published. It was a matter about which,
however, he was not likely to be mistaken, as it created much in-
terest at the time from being so contrary to all that was then be-
lieved and known on the subject. In that case, it was manifest
that whatever the source of infection, it was not the secretion of
the maternal passages. With regard to the particular solution to
be recommended he was glad that the author, whilst upholding the
silver nitrate solution as the best, spoke highly of the efficiency of
the solution of corrosive sublimate, which undoubtedly for or-
dinary use had certain advantages. It was important, for example,
not to render it compulsory for a midwife to carry more than one
kind of antiseptic. To make her carry several kinds not only
tended to still further overburden her already overburdened bag,
but was also in danger of confusing her mind. If it was desired
that the use of antiseptics in midwifery should become general,
the instructions for their use must not be too complicated. It
was all very well in hospitals, when the solutions are all in readi-
ness and supervision is constant. There, by all means, let the
ideally best method be carried out. But let them imagine on the
other hand, the district midwife in a remote country place, where
her loyal efforts to carry out in full detail the methods in which
she has been trained are not seldom ridiculed, instead of being
encouraged by the neighboring practitioner, upon whom she is
dependent for help in her difficulties. Let them imagine what
would be said, if, in addition to the ordinary basins of antiseptic
solution, themselves far too often an object of contempt and ridi-
cule, she produced a little phial of silver nitrate eye-drops. The
contempt and ridicule would know no bounds, and there would be
a fear lest the poor woman should, in her bewilderment and de-
spair, give up all attempts at antisepsis. For these reasons
amongst others, he thought that for general use in the homes of
patients, the solution of corrosive sublimate, though it might not
be ideally the best, was the most suitable. In the rules about to be

issued by the Central Midwives' Board, although the use of anti-
septics was repeatedly enjoined, it had been thought undesirable
to go into details as to the kind and strength of the antiseptic to
be used.   For all such details would require to be modified as
knowledge advanced, and it would be inconvenient to have them
embodied in rules, which when approved by the Privy Council,
would have the effect of law and be difficult to alter.   Might he
mention by way of illustration the solution of the biniodide of
mercury, to which several speakers had alluded.   He was in-
formed by competent chemists that the efficiency of solutions of
the salts of mercury depends upon their ionization, and that ioni-
zation occurred satisfactorily only in simple watery solutions of
one mercurial salt.   If another salt was present, ionization was
interfered with.   Now it was well known that iodide of mercury
is almost insoluble in plain water, but is freely soluble in a solu-
tion of potassium iodide, with which it is almost invariably com-
bined.   Hence it was doubted by chemists whether the ordinary
solution of the biniodide of mercury, not being a simple aqueous
solution, had any antiseptic value.   He was not himself enough
of a chemist to speak with any authority on the subject, and prob-
ably the matter would be decided rather upon the results of clin-
ical and bacteriological experiment, than upon chemical theory.
Meantime, he had merely given this as an instance of the manner
in which accepted methods might be called in question, and might
have to be modified or cast aside in the light of fresh knowledge.

DR. AMAND ROUTH was impressed by the strength of the ad-
vice that the Obstetrical Society should change their recommen-
dation as regards the routine use of corrosive sublimate solution
for the eyes of the new-born, and should adopt in its place a 2-per-
cent. solution of nitrate of silver.   The difficulties of such a rou-
tine use   had been fully stated.   He had been interested to hear
from Dr. Griffith, who strongly advocated the change suggested
by Mr. Stephenson, that whilst he wished all midwives to adopt
this course, he did not find it advisable to do so himself, and this
made his advice somewhat unpractical.   If the nitrate of silver
was only to be used in special cases, it was at once obvious that
the special cases would have to be very clearly defined, and that
was where the difficulty would be in any half and half measures.
The difficulty of preparing and of keeping the solution always
fresh would militate against its routine use, and these were among
the points which had led the Council of the Society hitherto to
advise the corrosive sublimate solution, which was always at hand,
and very easily prepared.   He asked if in the recorded cases of
congenital (intra-uterine infection) gonorrheal ophthalmia, in-
fection of other mucous membranes had been observed, and also
whether changes in the liquor amnii had been observed.

DR. PETER HORROCKS said that up to five years ago, when he
was seeing out-patients in the gynecological department at Guy's
Hospital, he used to send specimens to the bacteriological depart-
ment.   He did not remember to have been assisted in the diag-

nosis of gonorrhea in a single instance. Pus was taken from the urethra, the vagina and the cervix uteri. In cases of undoubted gonorrhea, often enough the report was negative, and no gonococci could be found. When they were found it was only when the case was clearly gonorrhea. In cases of chronic vaginitis, where it would have been a real help, the bacteriologists could find no gonococci. They used to say that not enough pus was sent. They wanted a teaspoonful. He did not know whether improvements had been made during the last five years, so that it was now a much easier matter to detect the gonococcus, or whether, whilst still difficult in regard to vaginal gonorrhea, it was easy in gonorrheal ophthalmia. If one could tell easily in any given case, whether a woman were suffering from a gonorrheal vaginitis, or a child from a gonorrheal ophthalmia, suitable treatment could be carried out in these cases, whilst healthy women and children could be let alone. The author of the paper had stated that 10 per cent. of children suffered from ophthalmia, and he thought this was too high a percentage, particularly in places where modern aseptic midwifery was practised. Obviously when routine measures of dropping germicidal solutions into the eyes of every newly-born child were adopted, they did no good at all in 90 per cent. of cases. If it could be shown conclusively that they did no harm, he would join in advocating these routine prophylactic measures. But he did not think this had been proved, and therefore one had to consider whether 90 per cent. of children should be put to some risk for the sake of benefit to the other 10 per cent. Again, supposing prophylactic measures were not used, and a child showed signs of commencing ophthalmia, would it not be easy to treat it successfully by starting the application of these germicidal remedies? One speaker had mentioned the reduction in the number of cases of ophthalmia neonatorum at Moorfield's Eye Hospital since the routine method of using germicidal solutions in the eyes of newly-born children had been adopted. But was not this diminution due, in part at all events, to the aseptic methods of the nurse and doctor at the confinement? He did not see why a selection should not be made, and only those children treated where there was a suspicion of gonorrhea in the mother, or of a commencing ophthalmia in the child. This would save at least 90 per cent., probably considerably more, from any such treatment. He thought that not only experts like obstetricians, but also the rank and file of the profession could tell with great accuracy whether a woman was healthy or not. Very few mistakes would be made, and even if a gonorrhea were latent and only showed itself by ophthalmia beginning in the child, such a case would be extremely rare and could be at once treated, and in all probability cured.

DR. BOXALL considered that strong reasons exist for the adoption of routine measures for the prevention of ophthalmia neonatorum, and more particularly in the practice of students and midwives. Mention has been made of 10 per cent. as representing

the incidence of the disease when no prophylactic measures are taken. But even were it three per cent. or even less, he saw good grounds for adopting a routine practice of prevention. For, in the first place, the disease, when allowed to become established, is so difficult to cure and so disastrous in its consequences, that preventive rather than curative measures are demanded. And seeing that in the hands of the experienced practitioner, it is difficult, and in many cases impossible, to decide at the time of delivery in what particular cases the source of infection may be lurking in the vagina, in the hands of the midwives, who cannot be expected to form an opinion as to the existence of latent gonorrhea, routine measures are absolutely necessary. Among these he desired to draw attention to the distinct advantage in the prevention of ophthalmia, which he had noted years ago at the General Lying-in Hospital following the routine use of sublimate vaginal douches before delivery, at a time when no systematic antiseptic treatment of the infants' eyes was carried out. At the present time, as a routine practice, the infants' eyes are freely flushed with 1 in 4,000 sublimate solution at the time of delivery, which probably brings to bear on the conjunctival surfaces, about the same amount of antiseptic, as 1 minim of 1 in 100 solution dropped directly into the eye, and has the additional advantage of mechanically washing away any discharge, which may have found lodgement between the eye-lids.

DR. SIKES said he thoroughly agreed with Dr. Boxall as to the necessity for the routine treatment of children's eyes in hospitals, and by midwives. In lying-in hospitals, as Queen Charlotte's, there was no difficulty in the carrying out of the method, but of course, there were the difficulties mentioned as to the employment of the silver nitrate method by midwives at the homes of patients. He thought that with hospital patients it was absolutely necessary to have a routine treatment, as it was impossible to tell whether the mothers had not at some time been infected, and it was quite possible that the gonococci might be present, even though the discharge had ceased: and under these circumstances, one could not pick out those cases which ought, and those which ought not to be treated with antiseptics. Statistics, as quoted by Dr. Stephenson, undoubtedly showed that the best results were to be obtained with silver nitrate, and surely they ought as a Society, to recommend what gave the best results. The only point, Dr. Sikes thought, was the strength of the silver nitrate, which ought to be used. With regard to the difficulty mentioned by two of the previous speakers, that silver nitrate solution would not keep for any time, Dr. Sikes did not agree with this. He said that he knew from experience that it would keep much longer than was generally supposed, if care was taken to keep it in well-stoppered bottles of colored glass: he did not see why there should be any difficulty in getting midwives to carry with them a small bottle of silver nitrate. The reaction of the eyes to silver nitrate was a difficulty to those not accustomed to its use, as it varied roughly between three and thirty-six hours, but one ought to try to introduce, at

least amongst hospital patients, that which gave the best results. One point, the difficulty of which had been very much overestimated by one at least of the previous speakers, was the detection of the gonococcus. Dr. Horrocks had said that he had been told that it was necessary to send about a teaspoonful of the pus for the detection of the organism. Dr. Sikes said he had examined a great many cases of pus from the vagina, and from the eyes, at Queen Charlotte's Hospital, and had come to the same conclusion as many others, that it was really very easy. The gonococcus was very readily stained, had a very characteristic appearance and grouping in the cells, and even without using Gram's method, or attempting cultivations, one could tell from the appearance alone to within, say 99 per cent. of all cases. One point of interest in connection with the examination of the conjunctiva for organism was mentioned by Dr. Eyre in his paper on "A Contribution to the Bacteriology of the Normal Conjunctival Sac," that is, that the lower sac was more likely to contain organisms than the upper; so that it is better to examine the lower sac in suspected cases; in the same paper Dr. Eyre mentioned results he had obtained, showing the inhibitory action of the lachrymal secretion on the growth of bacteria. With regard to the examination of gonococci in the vagina, Dr. Sikes mentioned that his experience was that the most certain way of finding the organism was by taking a scraping with the wire loop directly from the cervix, using a Ferguson's speculum to get a clear view. Many cases clinically gonorrheal are missed because the cover-slip preparation is so often made from the pus about the entrance to the vagina. The presence of sarcinæ mentioned in the statistics from Queen Charlotte's Hospital in Dr. Stephenson's paper, was probably due to the proximity of the Hospital to a brewery. They were, of course, quite innocuous. Dr. Sikes insisted on the early bacteriological examination of all sore eyes in newly-born children, and also of any vaginal discharge in the mother, so that if gonococci were found, even greater care might be taken so as to prevent the cases arising by infection from the mother after birth.

Dr. Cuthbert Lockyer said he was pleased to note that the author advocated that the Obstetrical Society should use its powerful influence in helping to bring about the universal adoption of Credé's instillation as the only reliable prophylactic measure for the prevention of ophthalmia neonatorum. In the *Journal of Obstetrics and Gynecology of the British Empire*, Vol. 3, No 4, p. 361, Dr. Lockyer drew attention to the fact that this method was quite unknown to the candidates for the certificate given by the Obstetrical Society, unknown, because untaught. Dr. Lockyer mentioned the experiments conducted in the obstetric wards of the Bonner Frauen Klinik by Fritz Engelmann, in which having regard to the bad results obtained by Cramer with silver nitrate, Engelmann employed protargol as a substitute, and found that by using a 2-per-cent. solution of this salt he got a prophylactic action equivalent to that of 2 per cent. silver nitrate, but without

exciting anything like so much inflammatory reaction. Whilst Cramer found no reaction in only 4 per cent. of cases, with 2-per-cent. solution of nitrate of silver, Engelmann could boast of 80 per cent. of cases, in which protargol was employed, without any sign of irritation. In no instances was secondary catarrh noted, where-as that trouble was met with in 11 per cent. of Cramer's subjects. Bischoff, Engelmann's successor at Bonn, uses a 1-per-cent. solu-tion of acetate of silver, which he regards as equal to 2 per cent. silver nitrate in germicidal activity, and considers that the so-called "silver reaction" is so harmless and slight as to present no argument against the eye instillation as practiced by Credé.

DR. SYDNEY STEPHENSON, in reply, said it it was significant that, notwithstanding the various opinions expressed, no single instance had been brought forward during the discussion where bad results had followed the adoption of Credé's method. He was convinced that it was the best available plan of prophlaxis, and he appealed to the Society to recommend it for general adoption. In that way the profession, and ultimately the public, might be reached. In reply to Dr. Routh, Mr. Stephenson stated that a purulent vulvitis was present in Armaignac's case of intra-uterine infection of the eyes. In two cases of his own there had been a simultaneous otorrhea, but gonococci could not be demonstrated in the discharge from the ear. Mr. Stephenson trusted that Dr. Horrock's case of ophthalmia in a baby delivered by Cesarean section might be published in full, since it testified to the possi-bility of an intra-uterine infection of the eyes.

As to the prophylactic use of corrosive sublimate, mentioned by several speakers, Mr. Stephenson said that the results so far ob-tained with a 1-per-cent. solution (as with a 20-per-cent. solution of protargol) were excellent, but the figures available were not yet large enough to allow one to recommend its general adoption. Besides, by some observers sublimate was thought to be detri-mental to the corneæ of babies. In Mr. Stephenson's experience, a 2-per-cent. solution of nitrate of silver kept well enough, pro-vided it was placed in an amber-colored bottle and kept away from the light.

REVIEW.

In this monograph Risel presents a very complete study of "deciduoma," or, as he prefers to call it, "chorionepitheliom," and of the analogous development sometimes seen in teratomata of the testicle. The literature, comprising 131 references, is most thoroughly analyzed, and the writer's conclusions are based in part upon the results of this analysis and in part upon his own studies. Six new cases of deciduoma are described and the result of the study of the metastases of a previously reported (Menge's) case, are also given.

Of the six examples two developed after abortion, one without metastases, the other with extensive secondary involvement of practically all organs except the spleen. The remaining four cases were associated with uterine mole. In one there was no dissemination, while two were accompanied by metastases. The fourth belonged to the group in which multiple metastases are found in the absence of a primary tumor of the uterus; the mucosa of the latter, however, being transformed into decidual tissue.

In describing the histological character of this tumor Risel uses the terms "typical" and "atypical" first introduced by Marchand. The former indicates a tumor in which is preserved the character of chorionic epithelium as seen in the early periods of pregnancy (symmetrical masses in irregular multinucleated branching processes with more or less prominently developed polyhedral decidual cells). The latter term indicates that this regular arrangement is more or less lost, the cells isolated, altered in form and differing in their staining characteristics. The distinction, however, is not always easy, owing to the occurrence of transitory stages.

Of especial interest are the observations upon the development of metastases in the skin; the ready penetration of the uterine vessels by tumor processes, thus explaining the secondary growths; and the relation which the new growth has to fibrin formation and the destruction of the invaded tissues.

Two cases are described in which after abortion and curettage an extensive development of chorionic epithelium-like tissue occurred without, however, displaying malignant tendencies.

From an analysis of the literature and the study of two specimens Risel comes to the conclusion that although cell formations

resembling chorionic epithelium may occur in teratoma of the testicle there is no proof that they arise from included fetal membranes. Their origin is apparently from the fetal ectoderm and they are of the same importance as other ectodermal structures of teratomata.   R. M. P.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Lactation and Pregnancy.—Henry M. Church   (*Ed. Med. Jour.*, September) reports cases to illustrate the risks of allowing lactation and pregnancy to overlap. From these cases he draws the following conclusions.   (1) That the suckling was or became a delicate child, that he at one or other stage of his development suffered from some affection of the nervous system, and that he was the mentally weak one of the family; (2) that during lactation the embryo was prematurely expelled from the uterus, or if it reached full time, that it, in many cases though not in all, did so with lowered vitality; and (3) that the mother's health was generally undermined for a longer or shorter time.

Iodine Treatment of Puerperal Sepsis.—W. R. Pryor (*N. Y. Med. Jour.*, Aug. 22) observes that in every case of puerperal streptococcus endometritis, streptococci are found free in the pelvis, and that in over 97 per cent. of cases they are present in the uterine contents. After cleaning out the uterus the writer opens the posterior cul-de-sac and packs both with large dressings of iodoform gauze. In nearly all cases, after this procedure, cocci will be absent by the third dressing. The iodoform acts by causing local iodism and it is this that sterilizes the pelvis. The writer reports 37 cases thus treated, in 27 no previous operation had been done and only one died, while 10 had been previously curetted by others and then died. In all of these cases enteroclysis or intravenous infusion accompanied the operation to aid in eliminating the iodine and toxins by the damaged kidneys.

Cesarean Section for Placenta Previa.—Francis D. Donoghue (*Am. Gyn. and Ped.*, Aug. 25) gives the following indications for Cesarean section in placenta previa: (1) Complete previa; (2) previa in primipara, in the presence of severe hemorrhage or rigid os; (3) where there is a history of previous operative delivery; (4) it should be considered in all cases where version is indicated, if a reasonably skilled surgeon is available and only an ordinary obstetrician; (5) all of these indications are based upon a probable viable child, twenty-eight weeks of gestation and upward. He believes the operation should be performed through the left rectus muscle. Incision of the uterus is not usually followed by hemorrhage, even when the broad ligaments are not constricted. Time should be allowed for contraction and retraction of the uterine fibers before attempting to remove the placenta. If sufficient time be given for this to occur, no blood will

be lost from beginning to end of operation, and if severe hemorrhage has preceded operation the abdomen can be filled with saline solution before it is closed. The shock of such an operation is certainly not greater than that of version or forceps in a woman already exhausted.

Phlegmasia Alba Dolens.—In outlining the treatment of this condition Herbert Marion Stowe (*N. Y. Med. Jour.,* Aug. 15) gives the following directions: Place the patient in bed, elevate the limb and envelope in a compress of gauze. The limb should be elevated six or seven inches—not more. Pain may be relieved by keeping the compresses as hot as can be borne; at times morphine is necessary; keep the bowels open by salines. When the subjective symptoms have subsided, gentle massage gradually increasing in vigor is of value in removing the semi-solid material from the tissues after the first week. Probably the best method of treating the subacute stage is by the use of hot air. The limb is well protected and subjected to a dry heat of 400° Fahrenheit for one hour, then bathed and massaged. This treatment is to be carried out daily until great improvement is obtained.

Rupture of the Uterus.—Georg Schmauch (*Chic. Med. Rec.,* August) divides causes of rupture during pregnancy into congenital and acquired. To the first class belongs the partial atrophies of the uterine wall. To the acquired causes belong all changes of the uterine wall due to constitutional disease or intoxicants (phosphorus) or local diseases, as syphilis. Tears in the muscles in consequence of gynecological operations, as vaginal fixation myomectomy, ventro-fixation certainly may produce the same predisposition for rupture. Rupture may also be due to accidents or violent interference with pregnancy, also up to the fourth or fifth month by the bones of the fetus. During labor rupture may be due to an abnormal state of being easily lacerated, an insufficient development, tumors, fistula, and scars. It is more apt to occur in multipara than primipara. A main factor in the etiology of the rupture is without doubt, to be found in the not uniform extension of the lower segment of the uterus in one direction. This factor comes in play in all cases of disproportion between the emerging fetal part and the pelvis. In head presentations rupture nearly always takes place on the side of the occiput, while in transverse presentations the part next to the side of the head fails. Rupture generally occurs when full dilatation of the os has been accomplished. Next to over-distention in certain cases with an undilated os, the augmented intrauterine pressure must be considered as a cause of rupture. Instead of the labor force, the hand or instrument of the usually too impetuous obstetrician, but sometimes even the most careful operator will lacerate the over-strained lower segment. Our diagnosis is generally based on the following symptoms: A sudden, acute pain occurring at the height of an intense uterine contraction, followed by cessation of uterine contraction. There is marked tenderness over the tear. Hemorrhage from the vaginal canal. Increased mobility of the fetus, and

collapse. In incomplete rupture these symptoms are less marked. When rupture is threatened we should forbid all bearing down efforts, administer opium, and place the patient in a posture so as to relieve the overstretched side, and deliver at once. Commonly overstretching is not excessive as long as the child is alive. A live child presenting by the vertex should be delivered by axis-traction forceps in Walcher's position, if possible; if not, we have to consider craniotomy, Cesarean section, pubiotomy or version. When the child is dead labor should be terminated by craniotomy, decapitation or exenteration. Rupture having occurred, deliver without considering the fetal life. Version is out of place. In case of abdominal section a conservative management must be accepted as a rule. When there is a suspicion of decomposition, sepsis, or a ragged rent involving adjacent structures remove the uterus. When the rupture is a complete one, laparotomy, cleaning the abdominal cavity and drainage is the best therapy. When the rupture is incomplete ligate the vessels if possible or tampon the rent; if this does not stop the hemorrhage operate at once. The prognosis is very serious. Of the cases treated by tamponade those where a glass or rubber drain are used give a better prognosis.

Proliferating Cystadenoma.—Winslow Anderson (*Pacific Med. Jour.*, August) reports the successful removal of a cystadenoma containing 12,000 c.c. of fluid from a girl seventeen years old. The growth was attached to parietal peritoneum, the undersurface of the liver, many coils of small intestines and the ascending, transverse and descending colon. The appendix was in a state of chronic catarrh and was also removed.

Gonorrhea in the Female.—It is a striking clinical fact, according to W. E. Fitch (*Am. Gyn. and Ped.*, September) that the gonorrheal inflammation in the female rarely presents considerations physically analogous to those observed in the male. Vaginitis of venereal origin is exceptional, and urethritis is excessively rare. The vagina has an inherent toughness which allows it to act as a vessel where the toxic materials may be elaborated and infect the endometrium, tubes and peritoneum, these parts being susceptible to infection. The great majority of pelvic diseases in women are due to gonorrhea. Of every hundred women who have married men formerly affected by gonorrhea, hardly ten remain well, and the others have some gonorrheal ailment. Gonococci do not lose their virulence even after laying dormant for years in the genital tract, but may spring into new life under the favoring influence of the pregnant state, or a curettage or cause a severe ophthalmia neonatorum. The tendency of gonorrhea in women is to become chronic. If secretions from the urethra or Bartholin's duct show gonococci the diagnosis is certain; the vaginal discharge is practically worthless for microscopical examination. In the treatment of female gonorrhea rest is of great importance, especially during the menstrual period, to stop the extension of the disease, which is normally self-limited.

Vaginal douches of permanganate 1 to 2,000 or 1 to 1,000 are indispensable. Urethritis and vesical complications demand balsams and alkalies; anodynes and sedatives may be indicated. If much pain and a frequent desire to void urine exist, urinary antiseptics and vegetable diuretics will give speedy relief.

Tuberculous Peritonitis.—A. J. Ochsner (*Am. Gyn. and Ped.*, September), in the absence of ascitic fluid in the peritoneal cavity, removes the diseased tissues if the section can be made entirely in healthy tissue. In presence of ascitic fluid the latter should be evacuated and the abdominal cavity drained. Great care should be exercised in making the intra-abdominal manipulations and examination, not to cause any abrasions. Adhesions should not be disturbed. The less the tissues are manipulated, the better will be the results. Manipulations of the infected pelvic organs, uterus, ovaries, Fallopian tubes, is less harmful than manipulations of the infected intestine.

General Purulent Peritonitis.—J. F. W. Ross (*Can. Pract. and Review*, August) uses the following method in treating purulent peritonitis. The abdomen is opened by an incision large enough to insure rapid and thorough work. The cause is located and surgically treated, if possible. All the peritoneal pouches, the post-splenic, the two lumbar and large pelvic pouch are douched with hot saline solution. If this washing can not be accomplished without partial or total removal of the intestines from the abdomen, they should be lifted out and douched with hot saline. If the washing is thorough, and there is no definite suppurating and pus exuding area, and it has been possible to surgically seal the original source of infection no drainage is necessary. When the source of infection still remains, use a combined gauze and tube draining. The next point in treatment after the wound has been closed is to inject three pints of normal saline solution by hypodermoclysis and give a hot rectal injection. He next begins the administration of opium and continues its use until the respirations are down to ten. The writer believes that opium acts as an antidote in this disease.

Treatment of Pelvic Cellulitis.—G. E. Herman (*Clin. Jour.*, Aug. 12) thinks that nursing is of the most importance in the treatment of this condition. Patients in a hospital where they are well nursed soon recover. For the burning pain in the region affected, chloroform may be given or local depletion may be tried. For external applications a good ointment is one made of two ounces of unguentum sodi and one dram of extract of belladonna. Salt-water compresses alleviate the pain and make the patient more comfortable. When the disease has become chronic massage may stretch the fibrous tissue, make the parts less rigid and thus do good. Other medical treatment consists in promoting digestion and keeping the bowels open. When an abscess forms it must be opened with the least possible delay. A swelling due to pelvic cellulitis, when felt bimanually, feels like a band of induration continuous with the uterus at one end and the pelvic bones at

the other. When the physical signs lead you to believe that such a swelling is in the cellular tissue, the way to open it is by an incision parallel to Poupart's ligament. If there is a distinct swelling between the uterus and the bladder it should be opened up by an incision through the anterior vaginal wall. When the uterus is fixed by inflammatory exudation, low down, and an abscess is discharging into the rectum, vagina or externally, which does not seem inclined to heal, extirpation of the uterus is good treatment.

Palliative Treatment of Fibroids of the Uterus.—Augustin H. Goelet (*Med. News,* Aug. 8) believes that oophorectomy as a palliative measure should be a matter of necessity rather than choice. Cutting off the blood supply by obliteration of the uterine arteries has been productive of good when the growth is interstitial and it is small and is situated below the fundus. Curettage is of value to arrest hemorrhage and stimulate the muscular fibers of the uterine wall to contract, whereby extrusion of the growth either toward the peritoneal side or into the cavity of the uterus is favored. Electricity, when properly applied, will bring about the following results : (1) It relieves pain to a considerable extent. (2) It will arrest hemorrhage when it is possible to reach all parts of the uterine cavity with the electrode. (3) It will, in a measure, relieve congestion and diminish the blood supply. (4) In some cases it will reduce the size of the growth. (5) When the growth is a true myoma of moderate size it will sometimes eventually disappear. (6) It will sometimes facilitate extrusion of the tumor and thus favor its enucleation. (7) It will sometimes break down the intervening wall between the growth and the uterine cavity and cause expulsion of the tumor from the uterus.

Pernicious Anemia Following Parturition.—Wm. Elder and Edwin Matthew (*Lancet,* Aug. 8) report two cases of pernicious anemia following labor, one terminating fatally in five weeks, the other in ten and a half weeks. In neither case was there postpartum hemorrhage, and the previous health of the patients was good. The writers suggest that the anemia resulted from toxic products thrown into the blood after parturition. Blood examination in both cases showed them to be pernicious anemia.

DISEASES OF CHILDREN.

Acetone and Diacetic Acid as a Cause of Persistent Recurrent Vomiting of Children.— Edward L. Pierson (*Arch. of Ped.,* July) reports three cases of cyclic vomiting in which acetone and diacetic acid were present in the urine before and in the very early stages of an attack. It has seemed to him at times as if the system acquired an increased susceptibility to the acid intoxication, smaller amounts producing symptoms the longer the child had the disease. It is probable that the acid is due to digestive changes rather than to errors in metabolism, as we can usually detect abnormalities in the digestive tract preceding the attacks.

As a rule, fats are not well taken, except fresh butter, and a too large predominance of carbohydrates has been found to produce the digestive changes which favor the production of the acid. If an attack is imminent the author stops giving milk at once, as the increased acidity tends to curdle it and precipitate the vomiting. He puts the child at once on whey, which also acts as a diuretic, and rusk, giving also a little scraped beef, and administers bicarbonate of soda to the amount of at least 125 grains in the twenty-four hours. This diet and the soda are kept up for two days, when the food is gradually increased and the soda diminished. There is considerable loss of strength after these aborted attacks, even if there is no vomiting, much more than can be accounted for by the decrease in the diet for two or three days. There is no doubt, however, of the utility of the remedy. In one case, that of a boy of three years, who would vomit at fifteen to thirty minutes' intervals during the greater part of three days, attacks have been aborted, and it is now eleven months since he has vomited, whereas in the previous ten months he had had numerous, severe and prolonged attacks.

Adrenalin Chloride in Operations for Adenoids.—J. F. Barnhill (*Med. and Surg. Monitor*, Aug. 15) says that for the past year and a half he has in every case of operation for the removal of adenoids, preceded the operation by dropping through each nostril of the patient ten to fifteen drops of 1 to 1000 adrenalin chloride solution; and if the faucial tonsils were to be removed at the same time, by painting them thoroughly with the same preparation. In young children the writer almost invariably does these operations under a general anesthetic, for the reason that great care can then be taken in securing the entire growth. Formerly he was annoyed greatly in all cases by the profuse hemorrhage, which not only necessitated doing the work through a mouth filled with blood and with undue haste, but was also not entirely free from the danger of inspiration of blood by the patient. The use of adrenalin as above suggested has greatly lessened the hemorrhage, and has been entirely satisfactory.

Aphthae and Herpes Contracted from Drinking Milk from Cows Suffering from Foot and Mouth Disease.—E. F. Brush (*Jour. Am. Med. Assoc.*, June 20) states that there is an aphthous condition of the young in both the bovine and human families that is non-contagious, and there is also an aphthous condition in both these species that is contagious, and the similarity between the contagious and the non-contagious in both families is so marked, clinically, that it is very difficult to separate them; in neither of the families and in neither the contagious nor non-contagious affection has, up to the present time, any pathogenic organism been discovered, and in the contagious affection, contrary to the general rule, one attack does not give immunity. Therefore the only way to diagnose in the human young a stomatitis aphthora acquired from the bovine race would be from the knowledge that the milk comes from an infected herd. All the

literature points straight to one fact, namely, no matter how severe the affection may be, if it is caused by the milk, it subsides very quickly without further treatment, by simply stopping the milk.

Appendicitis Without Symptoms.—Richard Jones (*Australasian Med. Gaz.*, July 20) reports the case of a girl of 13 who walked into his office complaining of having had pain and vomiting as the result of having eaten a green apple the evening before. She had had a similar slight attack a year before, but was otherwise well. Relief to a certain degree was obtained from an enema of opium, asafetida, turpentine and warm oil. The next morning, however, she had sudden and severe pain, with vomiting and collapse. Operation was performed 30 hours after she had walked into the consulting room. The appendix stood up vertically, like a solid mass, and at its base could be seen a gangrenous patch, having in its center a perforation. The patient died the following day. The appendix was cut open, and its walls found to be thickened and hard, its interior covered with ulceration throughout its whole extent, and showing concretions of a dark slate-color covered with muco-pus. The appendix must have been undergoing these changes since the previous attack a year before, and without a single symptom of any kind until that moment when the peritoneum was attacked, to be so speedily followed by perforation and general peritonitis.

Breast Feeding from an Obstetrician's Point of View.—Effa V. Davis (*Jour. Am. Med. Assoc.*, June 20) reports five cases in which all the infants presented indigestion in the first week of life. Four had a family history, either of rheumatism or eczema, and two of both. All recovered promptly on artificial diet containing cow's milk modified, and only one did better when some malted preparation was used. The conclusions reached by the author are: That it is often solely the idiosyncrasy of the child, not always the quantity or quality of the breast milk which prevents successful breast feeding. The idiosyncrasy may be along the line of a dyscrasia inherited from parents, subject to what is known as the uric acid diathesis. It is not fair to the infant to allow it to remain sick and in distress because of a paltry ounce or two which it manages to gain in the course of a week, just to have it breast-fed. A careful study of the child should be made in all cases where the signs of indigestion appear shortly after birth. And when possible a milk analysis should be performed many times to clear away, it may be, some of the doubts which arise. In large cities, where municipal laboratories exist, the assistance of an expert chemist would be of infinite value to the profession desiring to lessen the one-tenth death-rate of infants during their first month of life, and to the busy obstetrician who has no opportunity of becoming an analytical chemist.

The Changes in the Management of Laryngeal Diphtheria Treated by Intubation.—Edwin Rosenthal (*Pediatrics*, also *Archives of Pediatrics*, June) says that with the use of Behring's

serum he would intubate in every case, no matter what the age or at what time of the disease, and only resort to tracheotomy when the intubation tube is too small and does not entirely penetrate the seat of the obstruction, or when the membranes loosened by the serum or beginning to disappear by degeneration or the like, are pushed ahead of the tube into the trachea. His treatment of intubation is the following : The introduction of a suitable tube, not in ratio to the age but to the size and the condition of the child. Second, food, liquid if possible, semi-liquid if necessary, and always solid if necessary. Third, strychnine in proportionately large and decided, perhaps increasing, doses. The most serious question then is, the *removal of the tube.* This requires thought. It has been proved by clinical manifestation that it takes from 72 to 120 hours for the membranes to disappear from the throat. Being guided by this general rule, the author never makes his first attempt at a removal until 120 hours have elapsed ; if his case be a normal one, the serum acting correctly, it may then be cured. If, however, the patient cannot exist without the presence of the tube, he immediately re-intubates, and four days later attempts removal. Should there be the slightest symptom of suffocation, the tube remains until no longer required, be the time a day, a week or a month. If the tube remains longer than the second intubation, he calls it a "prolonged intubation," and begins a change in the treatment by intubating, and extubating with progressively smaller tubes until the patient no longer requires them. The strychnine treatment is continued in progressively larger doses until recovery ensues.

Croupous Pneumonia in Infancy.—Clive Riviere (*Lancet,* July 18) concludes (1) that croupous pneumonia occurs in infants below the age of two years as frequently as, and probably more frequently, than in older children ; (2) that in infants a diagnosis between croupous pneumonia and broncho-pneumonia is often impossible, many cases of broncho-pneumonia with lobar consolidation appearing in the post-mortem room with a diganosis of croupous pneumonia ; (3) that on account of this difficulty statistics based on diagnosis alone are quite untrustworthy ; (4) that this error can be largely eliminated when after much searching only a contrary result appears, and the compiler finds his former belief upset and disproved as the result of his investigation ; (5) that the mortality in croupous pneumonia is largest in the first year of life (25 per cent.) is considerable below the age of two years (15.4 per cent.). but for children above this age is comparatively small (2.3 per cent.).

The Diagnosis of Scarlet Fever.—An editorial (*Arch. of Ped.,* June) says that the pediatrician frequently finds himself face to face with a problem in the diagnosis of scarlet fever which baffles his skill, both in observation and deduction. The difficult cases are more often, not the severe. but the mild ones, in which the onset is insidious. the fever slight, the appearances in the throat and skin indefinite and unsatisfactory. The fact that many

of these cases are overlooked and no attention paid to the children until the onset of some serious complication, is familiar to all. It is therefore of interest that the announcement has been made that the Chicago Board of Health has in its laboratory devised a method of diagnosis as accurate and as easily applicable as that in common use for the diagnosis of diphtheria. According to the reports, the diagnosis is based upon the recognition of a certain variety of streptococci in the throats of the patients. The close association between streptococci and scarlet fever is well known, and many investigators believe that scarlet fever is a streptococcus disease. Some years have now elapsed since Class, of Chicago, published the details of the method by which he claims to be able to determine the diagnosis of scarlet fever by the results of throat cultures. Class' statements have, however, failed of confirmation elsewhere, and bacteriologists, as a rule, regard as unwarranted the claim that scarlet fever can be differentiated by the method in question. It is well established that streptococci are found in the throat in a variety of conditions other than scarlet fever, and bacteriologists have, so far as known, found no satisfactory method of discriminating the several varieties from one another. Aronson's recent work would lead to the conclusion that streptococci found in cases of scarlet fever, diphtheria, erysipelas and acute rheumatic fever are practically identical, and although Moser expresses a contrary opinion, the evidence of differentiation is far from conclusive. These are therefore good grounds for doubting the reliability of Class' method. If it is of value, it is desirable that the Chicago Health officer should so impress the fact and should so far clear away the obscurities at present surrounding the method, that it should become generally serviceable. Meanwhile we are compelled to rely upon clinical observation for diagnosis and should insist upon the quarantine and proper care of doubtful cases.

Fetal, Congenital and Infantile Typhoid.—John Lovett Morse (*Med. News*, Aug. 1) states that the following conclusions regarding fetal and congenital typhoid seem justified: (1) The typhoid bacillus can traverse the abnormal, and possibly the normal, placenta from mother to fetus. Other organisms may also pass in the same way. (2) Infection of the fetus results because of the direct entrance of the bacilli into the circulation. Intra-uterine typhoid is from the first a general septicemia. For this reason, and probably also because the intestines are not functionating, the classical lesions of extra-uterine typhoid are wanting. (3) The fetus usually dies in utero or at birth as the result of typhoid infection. (4) It may be born alive, but feeble and suffering from the infection. If so, death usually occurs in a few days without definite symptoms. (5) If it lives longer it may develop some of the classical symptoms of extra-uterine typhoid infection and at death may show some of its pathological lesions. Death is the usual result, but certain imperfectly reported cases suggest, if they do not prove, that recovery may take place. (6)

It is possible that the fetus may pass through the infection in utero and be born alive and well. There is, however, no proof that this happens. (7) Infection does not always occur. The pregnant woman does not necessarily transmit the disease to her child. In regard to infantile typhoid, it is proved that it occurs in infancy. Except for the lessened exposure in the first year through food, there is no apparent reason why typhoid should be less common in infancy than in later life; in fact, because of the greater susceptibility of infants to bacterial infection, it should be more common. Nevertheless, judging from the number of cases reported, it does occur less frequently. This infrequency may be real or apparent. If apparent it must be because the disease is unrecognized, or mistaken for other conditions. Analysis of the reported cases, in which the diagnosis rests on a positive Widal reaction, or positive cultures of the typhoid bacillus, shows that the type of typhoid fever in infancy, at any rate as regards its symptomatology, is essentially the same as in adult life. It is possible that this conclusion may be erroneous, as it may be based on the severe cases alone, the milder having escaped notice. The Widal test in large series of cases not clinically typhoid, and bacteriological examinations in large series of autopsies, offer the best means of solving this problem. The results thus far obtained by these methods are unimportant and inconclusive. In the light of our present knowledge, the symptomatology of typhoid fever in infancy, is essentially the same as in adult life, and it is really and not apparently infrequent at this age.

Flies and Summer Diarrhea.—A writer (in *The Med. Press and Circular,* July 29) states that summer diarrhea in infants has received a good deal of attention from experts in hygiene; the character of the fluid nourishment administered to children has been subjected to the most minute investigations, and parents have received careful instructions about boiling or sterilizing the milk. The prevalence of the stone-fruit season has also been held responsible for the production of the malady, regardless of the fact that very young infants are not, as a rule, given such fruit by even the most careless or ignorant mothers or nurses. Likewise, the influence of heat is largely over-rated, for, as a matter of fact, it is when the temperature begins to fall after a period of hot weather that the disease makes it appearance. Even when the food supply is above suspicion, and the infant is in apparently good hygienic surroundings, summer diarrhea is apt to present itself. Dr. Willoughby, writing in the *Sanitary Record,* lays stress on the importance of the common house-fly as a probable means of infection by conveying micro-organisms from neighboring decomposing animal matter, and then settling upon the food and person of the sufferer. In corroboration of this theory is the statement of Dr. Nash, Medical Officer of Health for Southend, that there was not a single death reported from summer diarrhea during last July and August, in which period there was a remarkable absence of flies, whereas the previous yearly average had been

twenty-five for each month. Dr. Willoughby suggests that if a sanitary campaign against flies could be instituted a diminution in infantile mortality from this cause might be the result.

Foreign Bodies in the Recta of Infants with Anal Stenosis. —E. Alan Mackay (*Intercolonial Med. Jour.*, May 20) reports two cases. The first was that of a child of two years, whose stomach was swollen and painful, and had been more or less constipated since birth. The child was well grown and well nourished; the abdomen was greatly distended, and the walls so tense that even when the child was put deeply under chloroform nothing could be made out by palpation. On attempting to make a rectal examination, it was found impossible to insert even the tip of the little finger until the anus had been forcibly dilated with a Spencer-Wells' forceps. The finger being inserted then, struck against a hard substance. This was removed with a small scoop, and was found to be a glove button, which had been acting like a valve in closing the narrow anus. A collection of beads, cherry-stones, plum-stones and pieces of road metal were then removed from the rectum, an enema given and a very large quantity of normal feces came away. The abdomen then fell slack, and was easily palpated. Three days later, as a doughy mass could still be felt in the right hypogastrium, the bowel was washed out with the high rectal tube, under chloroform. Several pounds of fecal matter were removed, containing plum and cherry-stones, chaff, egg shell, pieces of straw, and quantities of undigested fruit skins. An incision was made through the sphincter ani, the anus was thoroughly dilated, and there was no further trouble. The fruit-stones had the appearance of having been in bowel for some weeks. There was not the slightest sign of irritation or inflammation. The second case was very similar to the first, and both showed how a considerable amount of anal stenosis may exist in infancy, without being detected, until some hard lump or foreign body causes more or less complete obstruction. The rectum should always be examined in chronic constipation of infants.

Hydrotherapy in Pediatrics.—M. Borts (*Cleveland Med. Jour.*, August) says that in the treatment of febrile diseases, especially scarlet fever and cholera infantum, he has never derived so much satisfaction as in the use of the tub bath. He has also been surprised to find how easly, as well as successfully, such measures can be carried out in family practice. Two conditions are especially to be taken into account in the use of the tub in children's diseases—the temperature of the water, and the duration of the immersion. When the tub is used to reduce temperature in children, the water need not be so cold as in the case of adults. The same results can be obtained with a bath at 90° for a child that would require one at 70° for an adult. The same proportions prevail as regards the duration of the bath. In all ordinary cases, 10 to 12 minutes is long enough for a child; in many cases 6 or 8 minutes suffice, while in adults 15 to 20 minutes are required. The *soothing* effect of the cool bath on a child suf-

fering with fever is one of the strong arguments in its favor. Often a cross, fretful child that had been crying perhaps for hours, will fall into a peaceful and quiet sleep in the bath tub, and continue to sleep for hours afterward. The benefits of the bath are much increased by the application of cold water to the head while the child is in the bath. The hot bath, as a rule, is not indicated in acute febrile conditions, but rather in the chronic stage characterized by exhaustion. The author has been particularly impressed by the benefit of the hot bath in the later stage of long drawn-out cases of typhoid fever. The tub is the simplest way of administering a bath, but there are many conditions in which equally satisfactory results may be obtained by a thorough sponging or a wet pack, given either hot or cold. Water as a therapeutic agent is very beneficial when administered internally in gastro-intestinal disorders by irrigating the stomach and washing out the large intestine.

Influenza in Children.—William Carver Williams (*Jour. Am. Med. Assoc.*, July 4) says that age appears to have no influence on the susceptibility of the individual to influenza, and while very young infants are somewhat less frequently attacked, there is some question whether it may not be due to better protection rather than to natural immunity. Prophylaxis is difficult during an epidemic, still children should not be exposed to the contagion in the persons of other members of the family, nor sleep in badly ventilated rooms, nor breathe the vitiated air of public rooms and conveyances. Neither should they be allowed to risk contracting ordinary catarrhal "colds" from exposure. The bowels should be attended to and all the fresh air possible allowed. Cases of influenza in which catarrh figures as the most conspicuous symptoms are perhaps the most frequently met with. Starting with a rhinitis, or rhino-pharyngitis, the inflammation may spread either to the respiratory or alimentary tract, or both. Whenever there is mucous membrane we may have this inflammatory reaction excited by the activity of the Canon-Pfeiffer bacillus. Thus we may find the little patients suffering from a rhinitis, a conjunctivitis, an otitis media, an inflammation of the accessory sinuses or of the pharynx, larynx, bronchi, lungs, stomach or bowels. The seat of choice for the severer forms of the infection is doubtless influenced greatly by the comparative resistance of the mucous membrane in various localities. The more nearly normal and healthy the membranes, the fewer will be the grave manifestations of the disease. Hence the necessity for prophylaxis. Relapses and sequelæ during apparent convalescence are common, particularly the former, in cases where the initial seizure is mild, as well as where it is severe. Clinical diagnosis should always be supported by the evidence of the microscope whenever possible.

Lymphatism.—George Peacocke (*Dublin Jour. Med. Science*, July 1) reports two cases of sudden death of children in which the lymphatic glands were found to be enlarged and hard, and the thymus hypertrophied to nearly double its normal size. Dr.

Thursfield reports four similar cases and thus summarizes the points they possess in common: "The sudden death, the absence of any lesion sufficient to account for death, the presence of bulky and heavy thymus glands, and the evidence of hypertrophy of the lymphatic tissue shown in the enlargement of the Peyer's patches and the solitary follicles, and in two cases of the lymphatic glands." Kemdrat has collected twelve similar cases, in all of which there was evidence of hypertrophy of lymphoid structures. The cause of death in these cases seems quite obscure. There is no evidence to prove that it is due either to direct pressure on the trachea, or to pressure on the vagi in the neck by an enlarged thymus, as has been suggested. Pathological investigation has failed to corroborate the statement that it is due to coagulation of the blood, the result of thymus secretion, or that its cause can be attributed to the presence of certain toxins in the circulation. The association of hypertrophied lymphoid structures and sudden death in young children is now an established fact, but further investigation is needed to discover the relation that exists between them.

Marasmus.—Philip F. Barbour (*Am. Pract. and News,* June 1 and 15) has been trying a new drug in the treatment of this affection with rather encouraging results. It is copper arsenite. Arsenic administered in small doses exerts a stimulating action on the cells of the mucous membrane with which it comes in contact. The disadvantage of the potassium and sodium salts of arsenic is their solubility, which favors their osmosis even in the stomach. Of course, the antiseptic and stimulating action of arsenic is valuable there, especially as arsenic is one of the very few metallic substances which do not interfere with the peptonization of food. The more insoluble salt of arsenic is preferable, however, in marasmus, for here we want the local, stimulating action of the arsenic upon the cells in the mucous membranes of the stomach and intestines. The happy influence of minute doses of arsenite of copper in controlling nausea and vomiting is made much use of in controlling some of the vomiting attacks in infancy and childhood. It is more satisfactory than drop doses of wine of ipecac. For the pale mucous membrane and the tenacious mucus, the nausea, etc. of marasmic babies, it should be and is helpful. Its effects are not confined to the gastric mucosa; being more insolouble than the alkaline salts, it passes into the bowel. That which is absorbed is carried to the liver, where it is eliminated again in the bile, so that the copper arsenite is being absorbed and being secreted again in the bile in a happy circle, for its direct action on the atrophic intestinal mucosa seems to stimulate it to renewed activity and renewed absorption and assimilation. The author has administered it three times a day, after feeding, in 1-300 grain doses, dissolved in water acidulated with hydrochloric acid. His experience extends over twelve cases only, and he does not pretend that this is sufficient to prove the value of the remedy. Still it has come to his rescue in cases where he had despaired of affording any relief.

ORIGINAL COMMUNICATIONS.

THE PRESIDENT'S ADDRESS

Before the Sixteenth Annual Meeting of the American Association of Obstetricians and Gynecologists.

SOME OF THE SOURCES OF THE DISAPPOINTMENTS OF THE SURGEON.

BY

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Indianapolis, Ind.

It is fitting that I should at this time, with many expressions of obligation to you, acknowledge my appreciation of the high honor you have conferred upon me in choosing me to act as your President during the present year. Conscious of the high obligations resting upon me as your Chairman, it has been my chief endeavor, during the last year to labor effectively for the best interests of the Association. That you have cooperated with me in this endeavor is fully attested by the splendid programme we have been able to present at this meeting. Your interest in the high purpose of this Association is again verified. I am more than satisfied with the efforts that you as individual members, and as a united Association, have made to advance the cause of scientific medicine and surgery. As I have known and studied the history of the Association, it has been one of growing influence and power. It has always stood and is standing to-day for the best in obstetrics, gynecology, abdominal and pelvic surgery. Its members are representative men from all sections of

the continent. Not a few of its Fellows are recognized as authority in all lands in which modern ideas of medicine and surgery prevail. In works through its individual members and as an organized body it has been a force in the country. The newest and the best products of the medical and surgical world have been presented at our meetings, and not a few of the newest and best ideas have originated with our Fellows. Such, in brief, are some of the characteristics of the Association which it is your pleasure and mine to be affiliated with. To me it is a great pleasure and a pride to be a member of the American Association of Obstetricians and Gynecologists.

A feeling of sadness and bereavement came into my heart as I was penning the above lines. It was that our beloved deceased Fellow, Dr. Davis, would never meet with us again. What a strong member was he, and how efficient, well-balanced and kind. I have seldom known a man of kinder heart or one whose judgment I was more willing to trust than his.

It was fitting that our distinguished Fellow, his intimate friend, Dr. McMurtry, should tell us of his life and works. He has expressed to us in noble and appropriate language true ideas of the strength of character and wealth of attainments of our departed member.

I have chosen as the subject of the main portion of my address, "Some of the Sources of the Disappointments of the Surgeon." It is not my purpose to present to you an address filled with pessimistic statements, gloomy forebodings, or records of unhappy failures. There is no more pitiable object than that of an elderly physician or surgeon, who, after having passed a quarter or half century in successful endeavor in the practice of his calling, falls in the declining years of his life into pessimism or disbelief. To lose hope in one's successful endeavor and faith in the beneficence of one's lifework is heart breaking. I once knew a surgeon of this sort, who, during a splendid career as teacher and practitioner, reached an exalted position, and who, after his powers began to decline, became a skeptic as regards the curative value of medicine and surgery. A few years later found him specializing in the use of a secret remedy, the constituents of which he did not know, and later still he had entirely lost the confidence of his former patrons and become a cynical old man, largely dependent upon the support of an accomplished daughter, whom he had educated in his prosperous days. From such a fate, and from other unhappy states that must surely come to a surgical doubter

or scoffer, may we all be delivered. I beg of my listeners not to hear a pessimistic note in this simple address. Such is not the spirit that has prompted its composition. The motive that has actuated the writer has been one of inquiry to the end that the causes of our disappointments may be ascertained, so that in the future they may be avoided.

It is pleasant to think upon and to enumerate the glorious achievements of successful surgeons. It is a theme to call forth the eloquence of men. Not soon will those who were present forget the memorable occasion when a number of his friends gathered in the parlors of the Grünwald House, New Orleans, to present to the beloved Garcelon their token of love and esteem. Not far had his friends proceeded in the course, when Dr. Garcelon, moved by a recollection of the grand achievements of the past and by the anticipation of more magnificent and beneficent doings in the future, began to speak, at first deliberately, then more and more earnestly and eloquently, and his theme was the triumphs of the surgeons whom he had known. The theme enthused him; again the fire of early manhood was in his veins. Men were forgotten. In dilating upon the triumphs of surgery, there was not a word touching upon a personal motive of preferment or aggrandizement. All related to the accomplishments of the practice of the art of saving life and assuaging suffering. Such was the influence upon the hearers, and so in unison were they with his utterances, that they for a time forgot in the greater theme, their beloved friend, whom they had gathered to honor. No greater pleasure could come to me, if I were able to do it, than to give expression in an adequate manner, to my satisfaction and pride in the great and lasting benefits that have come to mankind through the application of the science and the practice of the art of surgery.

I believe in surgery and practice it, because I have faith in its beneficent power and have experienced some of the joy that comes with a moderately successful endeavor, so the tone of my address shall be hopeful. It cannot be denied, however, that we, as surgeons, meet with our full share of disappointments. The failure of the expectations of the surgeon is a grievous disappointment. Judging from reports in medical journals, we are led to believe that there are not a few of these disappointments in the paralysis following the bloodless operation for cure of congenital dislocation of the femur. The successful extraction of a cataract from the eye has given promise of restoration of the sight to

the organ operated upon, yet when a sufficient time has elapsed it is found that the patient must walk in total darkness the remainder of his days. A woman is racked by pain in the ovaries, which organs are prolapsed and inflamed. They are extirpated under the belief that such procedure will bring to the patient not only relief from suffering, but also restoration of health, so that she may again with joy take up and discharge the duties of life. Alas! this is not infrequently a delusive hope.

Former successes lead the surgeon to promise himself and his patient restoration to health or relief from fear of recurrence of the ovarian cyst, if it be extirpated. Upon opening the abdomen, a papillomatous cyst, with secondary peritoneal involvement, is found, and the surgeon knows that his hope must fall. After months of thorough study and experimentation, a surgeon brings forward a new procedure, the execution of which he believes will prove a means of lessening the mortality of some grave operation, or will diminish the risks of recurrence of some malignant lesion. The technique seems scientific and its execution is accomplished with ease. The profession accepts it. Its popularity grows so that in a few short months reports of cases are published in many countries and languages. After a time, when a great number of histories of cases have accumulated, it is found that less good has been accomplished by this means than by former long used ones.

These are a few examples which I think make plain the idea entertained by the writer in the discussion of his topic. Some of us are so constituted that a few failures are sufficient to make us skeptical of the value of all surgery. Indeed, I have heard surgeons say that they believe surgery had done more harm than good to mankind. Such men shut their eyes to the great accomplishments of our conservative and healing art. A few pitiful disappointments are not to be reckoned in comparison with the uniform benefits which the life-saving procedures daily executed by dextrous surgeons are producing. They should not cause the devotee of the surgical art to falter or turn back. They should rather stimulate him to more careful study of etiology, pathology and diagnosis, and more painstaking care in the selection of procedures and in the after-treatment of patients.

In our eagerness to accomplish our desires, we ofttimes set too rapid a pace, forgetting that, "To climb steep hills requires slow pace at first." When we see a surgeon running with hot haste in pursuit of a newly announced idea, whether of principle

or technique, we know full well it will be a chance, if he does run wide of the mark he has set before him.

In consequence of the great activity of the last quarter of a century, in presenting new ideas in surgery, both of etiology, indications and methods, it has required the utmost diligence on our part to keep abreast with all of them. Because of the impossibility of proving all things presented, we have been compelled to accept the dictum of many men whom we consider authority, and have been, sometimes, alas, led astray, and disappointment has overtaken us. Is it not time for us to pause and consider, to weigh, estimate and to accept only upon demonstration, an alleged truth, whether of principle or practice? Certainly in the end, truth will prevail and shall we not save ourselves and our patients many humiliating and heart breaking failures, if we are but more deliberate?

This has been called the golden age of surgery. Let the surgeon of to-day be careful lest it be called the age of surgical daring. Ruskin has shown us that in art, "Repose the type of God's permanency," is the test of greatness. A few men there were in the past generation who possessed to a marked degree the elements of repose. Of these Pasteur, Lister, Tait and Sims are conspicuous. Their work shall abide. There are those among the surgeons of to-day who have wrought equally well, yet whose names it is better for the historian of future generations to write.

The character of an age is given by its great men, only when the rank and file are in accord with the teachings and practice of the masters The great activity in surgery of the last quarter of a century has promised much, but has been somewhat disappointing, because of the meagerness of established principles produced. In our own specialty note the changes of opinion and practice that are constantly taking place in regard to methods of procedure in intestinal surgery, methods of treatment of malpositions of the uterus, and respecting the etiology and treatment of cancer.

I would not lift my voice against the struggle of competent men to establish the truth. My cry is rather against those who are continually presenting something new, something crude, and something which in the end is liable to prove delusive.

All surgeons should remember, that there are ever present underlying principles which must be known and duly considered if their efforts are to be successful. Some of these principles, operative in our physical being and influencing our health, are tissue

metabolism, growth, maturity and decay; the necessity of the presence and the normal performance of the functions of all the organs of the body. Organs and structures, unless supernumerary, are created or evolved for a purpose and this purpose is in some manner connected with our continued existence and perfect health. Organs and tissues of our body are corelated. Organs and tissues, though crippled and imperfectly performing their functions, are ofttimes helpful in maintaining a proper equilibrium. The organism exists in accordance with established laws, among which, aside from those noted above, is one, an inherent power which, for want of a better name, we call vital force, some manifestations of which are seen in the growth of organs and development of functions, in the power of resistance to deleterious influences, and in the power to build up, and to recuperate and to tolerate baneful materials. These are some few of the underlying principles governing our existence, and are well known to all surgeons; but sometimes a surgeon seems to suffer from a temporary lapse of memory, so that in consequence of the impelling force of his earnest desire to restore his patient he proceeds to amputate, extirpate or exsect, when rest and passive motion, drainage and pure air, would ofttimes bring about a restoration of health to the patient. Such a surgeon will be doomed to many disappointments.

I do not feel the slightest inclination to attribute to surgeons, as a class, an overweening desire for preferment as to positions of honor or recognition of eminent ability. As a class they are votaries of an earnest desire, that of the welfare of their patients and the upbuilding of the science and art of surgery. In the endeavor to realize this desire, in the accomplishment of this end, there is no labor too great for the true surgeon and no sacrifice too self-sacrificing. For toil without recompense, forgetfulness of self, patient endurance of dangerous situations and circumstances, and patient waiting for the opportune movement in the face of the ingratitude of the patient and friend, I have not elsewhere seen so striking a figure as the physician and surgeon.

I would not apotheosize the surgeon, for he is very human, yet is his an exalted motive. His power for good can scarcely be measured by human calculation, but he is human, with all the frailties of mortal clay. He hates to be told this by his critics and enemies, but he says it to himself a thousand times, and again and again reforms his plans. To the end of his professional life he struggles to strengthen his weak points, and often seem-

ingly with little avail. Still he is undaunted and always hopeful.

In surgery some one must take the initiative. We must have explorers in medicine and surgery. Sometimes such an one becomes a discoverer. After him comes the pioneer and later those who permanently occupy the ground. If it be found productive under the patient toil of the latter, that which is of greatest value is possessed and permanently improved. The work of discovery, of pioneering and of permanent development and cultivation of a new country, is not more arduous or productive of results than is a corresponding work in medicine and surgery.

A Jenner discovers a fact and applies it. A century later a Pasteur works out the principle underlying the fact and extends its application. Then follow the tireless workers who have given the world its ideas of asepsis, antisepsis, and the many serums, the latter to render the human family immune from certain dangerous contagious diseases and to cure others. Numerous currents and counter-currents of opinion have prevailed respecting the influence of the application of the principles thus promulgated, yet there has been a steady onward progress. There have been a few deaths because of the hasty acceptance and application of alleged discovered facts, but as a whole there has been a steady advancement in the use of these life-saving means and measures. Here we have the discoverer, the explorer, the pioneer and the cultivator of the soil.

This seems to be the natural order. Many parallel instances might be cited in special fields of surgery. The discoverer never says the last word respecting any subject. Tait did not do it in writing upon ectopic pregnancy and gall-stone surgery. Neither did Sims in his teachings relating to the etiology and technique of the operative cure of vesico-vaginal fistula. They were great discoverers in these lines, greater than any that have followed, yet we are plodding along cultivating the soil, as it were, and making other, though minor, discoveries.

Ours is an arduous labor, very honorable, and should be satisfying. Too often it is not so considered, so that too frequently we see men breaking away from the well-established facts and though not thoroughly prepared by nature or attainments, endeavoring to become discoverers. Such men are certainly doomed to disappointment. This is a most interesting theme for thought and study. One of the eminent teachers and authors in the department of chemistry recently said at a meeting of representative physicians and surgeons, that our medical papers would not be ideal

until there were excluded from them all old established facts, and the writers or preferably the speakers should present in a concise statement only the new facts they had themselves worked out and demonstrated. This is the utterance of an idealist. His are extreme views which, if acted upon, would deprive many of the profession of a knowledge of some of the most important discoveries made by our original investigators. Tyndall labored a year and a half verifying the discoveries of Pasteur. The recollection of the powerful influence in establishing correct ideas of pelvic surgery of the pioneer work of Tait's students in this country is too recent and too familiar to require more than a mention. These men did true pioneer work. By writing, speaking and demonstrating persistently in season and out of season they finally brought the surgeons of this country to the right way of thinking and doing. Numerous other examples press themselves upon us demonstrating the value of proving all things and of promulgating all truth. It is a perilous thing to the patients for some surgeon to attempt the role of original investigators, especially if the living human subject be the only one upon whom the would-be discoverer can apply his alleged new principle or method. An opportunity such as came to Sims is seen by but few men in a thousand years. Only Sims saw it. "He saw what he brought eyes to see." He had few peers in this country in his generation. He had a right, such as few men who have ever lived, possessed, of working out his ideas upon the living human subject. With him the results justified the means.

The patient is an unknown factor in every surgical case. Until we have found the means of determining his power of resistance and his recuperative powers, the means of determining the number and nature of the micro-organisms in his sweat glands, the presence of the fatty heart, and atheroma of the coronary artery, we need not be surprised if we occasionally meet with unexpected failures. The temperament and habit of the patient frequently do not reveal themselves, until too late to enable us to eliminate their deleterious influences. Latent and dormant lesions of other organs and tissues than those under surgical treatment are sometimes suddenly aroused to great activity and lead to unlooked for results. Every surgeon of experience can readily recall instances verifying these statements.

The emergency cases are most frequently disappointing—those in which an acute illness of a surgical nature calls for prompt surgical intervention, as in perforation of the typhoid ulcer, ap-

pendicitis, or obstruction of the bowels; also cases in which the patients have sustained grave injuries which call for serious rescue operations. Here, of course, time is not permitted for investigation into the history of the present condition of the organs of the patient. The surgeon must act at once and accept the results. The surgeon, however, cannot justify himself by any excuses if, in cases not requiring haste, he does not use every measure known to him to obtain a good working knowledge of the patient's history as to former illnesses, and the present state of the organs of the body. Do the best he is able, something will not infrequently escape the surgeon's observations and lead him to disappointment, but not overwhelming disappointment, for the difficulties he encounters, the obstacles obtruded in the way of successful endeavor lend great variety and interest to his work. Clear sailing and continued sunshine bring ennui. A succession of typical cases brings one into routine practice which is fatal to the highest endeavor and attainment of the practitioner. The weak surgeon is the one who shrinks from difficult tasks and large undertakings. The strong one is he who finds the greatest satisfaction in successfully accomplishing the most difficult undertaking. I am aware that this is all very commonplace, yet it is fitting to our subject. We are continually meeting members of our profession who are drifting as aimlessly as the derelicts upon the wide ocean, all because of their lack of capacity or unwillingness to endure the hardships and disappointments of difficult and complicated work. Such men seldom experience the satisfaction, joy and exultation successful endeavor brings.

The last source of disappointment I shall mention relates to the surgeon and his environments. I have already recorded my high estimate of the ability, earnest purposes, and the conscientiousness of the surgeon. Possessing all these qualities he nevertheless finds himself at times deliberately acted upon by external circumstances, and by conditions of the mind and body which he can not at the moment control. The most nearly perfect surgeon is one who orders his life with the utmost care. Nature must have been profuse in her gifts to him; a good constitution, excellent health, superior intellectual and temperamental endowments, an indomitable will, inflexible purposes, and high moral susceptibilities. His training should be for the development of these faculties together with the special training that will give him the requisite knowledge and skill to do high grade special work. Now add to this good judgment, self-control and modera-

tion in all things, and we have the essential elements of a succesful surgeon. The elements must be combined in the right proportion and be of excellent quality in order to yield anything like a perfect product. Even when the combinations are good, and the results excellent some unfortunate circumstances may arise to temporarily unfit the surgeon for the performance of his most successful work. Some of these are, temporary ill health, over anxiety, over-indulgence in eating and drinking, loss of sleep, overwork, too great haste, lapse of memory, a preoccupied mind or the presence of uncongenial or antagonistic assistants. Any or all of these factors, acting upon the man in the presence of important work, may bring unfavorable results. I need only to suggest these to bring to your minds at once methods of relief. He who would attain to the highest in medicine and surgery must order his life with the utmost care and moderation. Ruskin would write over the door of every school of art the word, "Moderation." The artist does not need to be taught the necessity of exercising this virtue in order to realize the highest ideals of his art, more than does the surgeon. A strenuous life in the vigor of early manhood along the line of one's aptitudes and powers is to be commended, but great and fitful energy erratically applied, especially if it be for the accomplishment of an unworthy or non-essential object, will almost certainly bring the man to disaster with his lifework incomplete.

Disappointments in greater or lesser degree will come to all surgeons be they ever so successful, for it seems to be the natural order of things that contrasting or antagonistic elements exist side by side. The man who becomes despondent and inactive because of this, is the weak man. The strong man will endeavor to magnify the good and crush out the evil. He will in so far as it is possible remove the ugly and retain the beautiful. The surgeon's hope should be to eliminate every preventable source of failure, and when failures do come to make of them taskmasters compelling the way to better things.

224 North Meridian Street.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Sixteenth Annual Meeting. Held in Chicago, September 22, 23 and 24, 1903.

The Association met in the Northwestern University Medical School, under the Presidency of Dr. L. H. Dunning, *of Indianapolis, Ind.*

Dr. William A. Evans, of Chicago, delivered an Address of Welcome on behalf of the local medical profession, which was responded to by President Dunning.

After a short executive session the reading of papers was proceeded with.

RELATIONSHIP OF THE COLON TO ABDOMINAL TUMORS.

BY

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Columbus, Ohio;

Surgeon to Grant Hospital; Fellow of the American Association of Obstetricians and Gynecologists, etc.

With two illustrations.

When a physician is consulted by a patient presenting an abdominal tumor, the first thought that comes to his mind is as to the origin of the growth. This having been determined, if possible, the question of treatment comes second. With the patient, the treatment is of course first, the etiology being of very minor importance. Many times the diagnosis can be arrived at promptly, since the history of the case and the location and feel of the growth will enable a decision to be reached by the direct method. More frequently, however, it is necessary to reach a diagnosis by the method of exclusion. It was the prominence given to this method of diagnosis which made the late Prof. J. M. Da Costa so famous as a clinician. The relation of the new growth to adjacent organs, what may be called its "geography,"

is sometimes of very great importance in establishing the diagnosis, and it is here that an exact knowledge of anatomy is of very great value.

At a meeting of this Association a year or two ago, a very prominent surgeon reported a case of cystic tumor of the spleen,
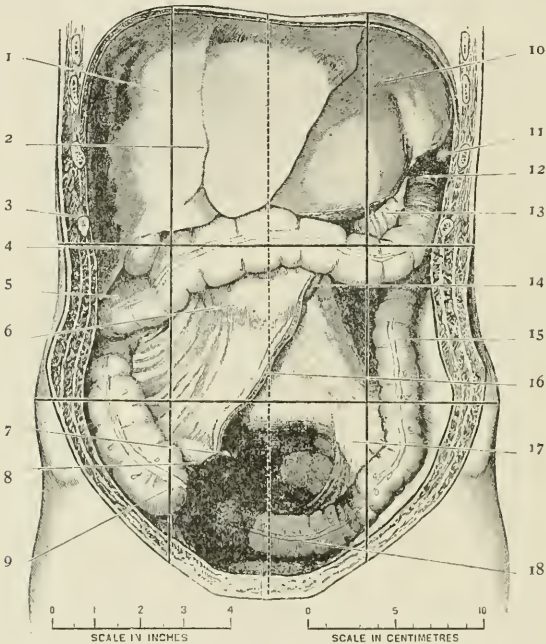
Fig. 1. Showing the relations of the colon after the removal of the jejunum and the ileum. (From a photograph.) The transverse colon is more regular and both the liver and cecum are lower than usual. (Cunningham.)

1. Liver. 2. Attachment of falciform ligament. 3. 10th rib. 4. Gall bladder. 5. Hepatic flexure. 6. Third part of duodenum. 7. Apex of vermiform appendix. 8. Terminal part of ileum. 9. Cecum. 10. Stomach. 11. Spleen. 12. Splenic flexure. 13. Transverse mesocolon with stomach resting on it. 14. Terminal part of duodenum. 15. Descending colon. 16. Root of mesentery (cut). 17. Pelvic (sigmoid) mesocolon. 18. Pelvic colon (sigmoid flexure).

in which he had operated with an idea that the tumor was an ordinary ovarian cyst, and did not discover his mistake until the incision had been made. In reporting the case, he remarked incidentally that a differential diagnosis between a cystic tumor of the spleen of large size and an ovarian tumor was not possible. With that statement the writer, during the discussion which fol-

lowed, took issue; taking the ground that the relationship of the descending colon to a splenic tumor was entirely different from its relationship to an ovarian tumor. It is this relationship of
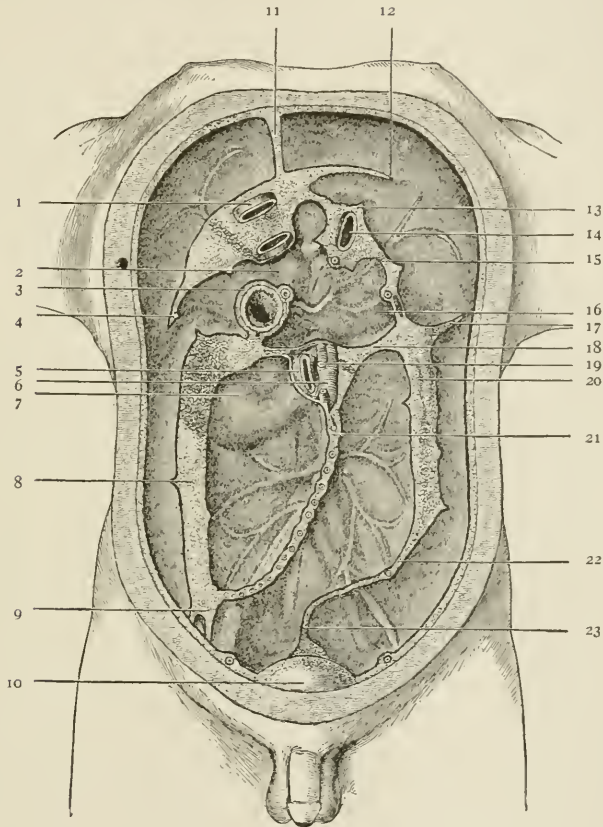
Fig. 2. Diagram drawn from same body as Fig. 1, showing how peritoneum is reflected from posterior abdominal wall over viscera and the resulting subdivisions of the abdominal cavity. (Cunningham.)

1. Vena cava. 2. Foramen of Winslow. 3. Duodenum. 4. Right lateral ligament of liver. 5. Duodenum. 6. Aorta. 7. Duodenum behind peritoneum. 8. Bare surface for ascending colon. 9. Commencement of colon. 10. Bladder. 11. Falciform ligament of liver. 12. Left lateral ligament of liver. 13. Gastro-phrenic ligament. 14. Oesophagus. 15. Gastro-splenic omentum. 16. Splenic artery. 17. Costo-colic ligament. 18. Trans. meso-colon. 19. Superior mesenteric artery. 20. Bare surface for descending colon. 21. Mesentery. 22. Sigmoid mesocolon. 23. Meso-rectum.

the colon, which is a comparatively fixed organ in the abdomen, which I wish to present more particularly in this paper. Harris, of Chicago, drew special attention to this over five years ago,

but his paper seemed to attract little attention.[1]   Ziemssen, in 1883, suggested the dilatation of the colon to aid in the differential diagnosis of colonic disease.   Writers in general, however, even the most recent, have utterly ignored this use of the colon in the diagnosis of abdominal diseases.

Roughly speaking, the ascending, transverse and descending portions of the colon constitute three sides of a square, and divide the abdominal cavity into four regions : the central region, surrounded by the colon ; the superior, above the transverse colon ; and the right and left lateral regions.   A tumor originating in one of these regions may crowd over into another, but it can do so only by displacing the colon, and it is the study of this displacement which enables us to determine as a rule the origin of the tumor.   In the central area, in addition to tumors connected with the uterus and ovaries, will be found tumors of omentum and mesentery, of the retroperitoneal glands, of the small intestine, and malignant, parasitic and other rare growths, the diagnosis of which must be determined, if at all, by other means ; their relationship to the colon simply determines their location, not their character.

The colon can under ordinary circumstances be pretty accurately outlined by percussion, but when distended by air, which can be easily forced in through the anus by an ordinary bulb syringe, the outline can be determined with absolute certainty. While the colon itself may be displaced by other abdominal viscera and tumors, the mesocolon has its parietal origin pretty uniformly fixed.   This natural attachment is shown in our standard works on anatomy.   Bearing this colonic attachment in mind, and knowing its relationship to the abdominal viscera, the surgeon is in position to gain much information of a diagnostic character when trying to determine the origin of an obscure abdominal tumor, and it will seldom be necessary for him, if he is at all expert in physical diagnosis, to distend the colon artificially, though such a procedure will in obscure cases be essential.

Most abdominal tumors originate in the ovaries, uterus, kidneys, spleen, liver, pancreas or omentum.   Taking these up in the order named, it will be found that the ascending and descending colon must necessarily be on the outside of tumors originating in either the ovaries or uterus. (In Vol. I., page 117, of Kelly's work on Gynecology, is pictured a case in which the sigmoid flexure of the colon seems to be attached from left to right along the an-

[1] Journal of the American Medical Association, Feb. 11, 1898.

terior border of the pelvis, the uterus and its appendages being directly back of this portion. If this figure represents the correct attachment, the condition is certainly an anomaly, and of such rare occurrence that it may be ignored. It is hard to conceive, however, of such a possible attachment when one studies the embryonic evolution of the colon.)

The kidney is normally situated behind the colon. A tumor, therefore, originating in the kidney will develop between the layers of the ascending or descending mesocolon, and the colon will be found in front of the tumor or towards its inner side.

Tumors of the adrenals, and those developing in pararenal tissue, or from the Wolffian body, like those developing from the kidney, will produce an anterior or inward displacement of the colon.

A tumor developing in a movable kidney, while usually appearing first on the outside of the colon, may eventually enter the central area so that the colon presents upon its outer side; but when the patient is recumbent, the kidney tumor will usually slip back into its original position unless held by adhesions.

Any tumor which displaces the ascending or descending colon forward or inward is in all probability a tumor of the kidney or of the adrenal.

The spleen must necessarily be on the outside of the descending colon, or, if greatly enlarged, will override it entirely. Bearing this fact in mind, it would seem as though there should be no difficulty in the differential diagnosis between tumors of the spleen and those of the kidney, or of the ovary; and yet such mistakes are being frequently made and by the best of men in the profession. In the JOURNAL OF OBSTETRICS, of April, 1902, is a report of three splenectomies which had been made at the Johns Hopkins Hospital. In each of these three cases the tumor had been mistaken for a neoplasm of another organ; in two of the cases the tumor was supposed to be ovarian, and in the third the diagnosis was made of a cystic kidney. In the report of these cases nothing is said to indicate that any examination was made to determine the relationship of the colon to these growths.

I have personally known of two physicians, sufficiently prominent to become presidents of a state medical society, and a third who was recently a president of the American Medical Association, to mistake a tumor of the kidney for an enlarged spleen, simply because they had ignored the landmark of the colon.

An enlarged spleen with its suspensory ligament and gastro-

splenic omentum elongated, might perhaps, if the patient were in the erect position, be apparently located on the inner side of the descending colon; if, however, the patient were examined when recumbent, the spleen, in the absence of adhesions preventing it, would slip back into its proper position and then the colonic tympany could be easily made out toward the median line.

Enlargement of the liver crowds the colon down or overrides it. There should, therefore, be no difficulty in differentiating the liver from any tumor arising from the pelvis or from the kidney. The gall-bladder, being a part of the liver, also crowds down or overrides the colon. It may even when elongated hang down in front of it for a considerable distance. Without bearing these facts in mind it would be many times difficult to diagnosticate between an enlarged gall-bladder and a tumor of the right kidney, but remembering that the gall-bladder lies above or in front of the colon, while the colon lies in front of, or somewhat to the inner side of, an enlarged kidney, the diagnosis as between these two is not difficult.

Recently I was consulted in a gall-stone case in which the patient presented as a complication a tumor strikingly like an enlarged right kidney. This tumor was distinctly behind the colon, and ascended and descended with deep respiratory movements; and yet it was impossible to press the fingers in above so as to separate the tumor from the liver as can be done with the kidney. The diagnosis was therefore somewhat in doubt. The patient was a female who had perhaps laced in her younger days, and at the operation, at which a number of gall stones were removed, this peculiar tumor was found to be an elongated outgrowth from the right lobe of the liver extending downward on the outside of the ascending colon, the colon itself overriding it, as it was crowded over by the small intestines. Had we in this case resorted to inflation of the colon, it is probable that a correct diagnosis would have been made, although I doubt if this could have been positive.

Tumors of the stomach will, of course, crowd the transverse colon downward.

Tumors of the pancreas have almost always been mistaken for something else; almost invariably in the female for tumors of the ovary. A study of the relationship of the transverse colon in these cases would almost certainly have obviated the error, since in 95 per cent. (Harris) of these cases the tumor appears above the transverse colon. In a few cases it lies behind the colon,

but even in these the fixed location of the transverse colon would render a correct diagnosis almost certain. In only a few cases has the pancreatic tumor projected above the stomach, between it and the liver.

A cyst of the extremity of the pancreas may appear behind the ascending or descending colon and thus simulate a tumor of the kidney; but ordinarily the transverse colon will suffer some displacement, and this may lead to a correct diagnosis.

In a case of cystic tumor of the tail of the pancreas which I had some years ago, the differential diagnosis lay between a cystic tumor of the pancreas, and a similar tumor of the left kidney, or of the suprarenal capsule. The fact that the urine from the left kidney showed evidence of a pyelitis, led me to rather favor the renal origin of the tumor, although some symptoms were lacking. Because of this uncertainty, an anterior incision was advised, and this very quickly revealed the character of the cyst. It was opened and drained and the patient recovered.

Tumors of the omentum, if developing in its lower portion, cannot by their relationship to the colon be distinguished from tumors arising in the pelvis; their diagnosis must be determined, if at all, by exclusion.

Those rare cysts which develop between the folds of the mesentery or of the mesocolon, must be diagnosticated by other means than by their relationship to the colon alone, and as a rule their exact character is not determined until the operation.

125 S. Grant Avenue.

Dr. J. Henry Carstens, of Detroit, Mich., said that while the relation of the colon to abdominal tumors was of considerable value as a diagnostic point, there were some cases in which it was difficult to differentiate one from the other. He recalled a case of tumor of the spleen with a long pedicle, in which the spleen was attached to the posterior cul-de-sac. The woman had a number of fibroid tumors, and naturally he thought that the spleen was a part of a tumor, the colon being in the normal position.

He had seen cysts of the kidney which were attached to the left side, extending down into the pelvis, pushing the colon and everything over on to the right side, so that it was impossible to distinguish them from cysts of the ovary. He had seen ovarian tumors develop on the left side and become firmly attached to the anterior abdominal wall; they had worked up to the kidney on that side, and had never developed on the right side, everything being pushed over on to the right side, the colon and intestine and

the cystic growth between, so that no one could tell positively whether it was the ovary or other organ.

Dr. L. H. Dunning, of Indianapolis, Ind., recently encountered a cyst of the pancreas which was situated at its outer extremity and freely movable. This cyst sprang from the pancreas and developed far over, pushing the colon to one side, the descending part of the cyst being behind the colon, so that when it was removed it was found behind. When held in a certain position and the colon extended over it, it seemed to him that it was a cyst of the kidney. He was so certain it was a cyst of the kidney that before beginning the operation he plunged a needle into it. No fluid was obtained. The tumor had been present for a year and a half. The abdomen was opened and a cyst of the pancreas found. The cyst had developed between the transverse colon, the stomach and the lesser peritoneal cavity. It was as large as a child's head, could be removed in any direction almost through the abdomen, and its attachment to the pancreas was so slight that he was able to extirpate it very readily.

Dr. Baldwin, in closing the discussion, said that the spleen, as he had previously remarked, had its origin in the suspensory ligament and gastrosplenic omentum above the transverse colon. Sometimes the pedicle was very long, and if there were adhesions it might be difficult or impossible to differentiate it, but in the absence of adhesions the spleen would drop back. There were cases in which there was a long pedicle with adhesions binding the spleen down in the pelvis, and two or three such instances had been reported within a short time.

In a tumor of the tail of the pancreas, there was a resemblance to a tumor of the kidney, so that it might be difficult to make the diagnosis, yet the relationship of the inflated colon to a tumor of that kind was different from the relationship of an enlarged kidney or kidney tumor, because the latter was behind the descending colon. It was not in relation with the transverse colon. In 90 per cent. of the cases tumors of the pancreas appeared above the transverse colon; if it was the tail of the pancreas, they occurred partly to one side; if at the head of the pancreas, the other side, while tumors of the kidney appeared behind the colon. A tumor of the suprarenal capsule might be mistaken for a tumor of the tail of the pancreas, but not of the kidney substance itself, if the colon was fully distended.

THE VALUE OF VAGINAL CESAREAN SECTION, WITH REPORT OF TWO CASES.

BY

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To Dührssen of Berlin the credit is due for having introduced this valuable method into practice. No matter what others may have done before him he has laid down the rules and indications for the operation and given them the widest circulation. It was only through his writings that I became acquainted with them and I was struck by the efficiency of his method in a case of cancer of the womb, at four months pregnancy, about four years ago. I could at that time comprehend that it was destined to take the place of ventral Cesarean section in nearly every case where the soft parts formed the obstacle to delivery or where a narrow pelvis below 8 cm. could be excluded. The clinical reports of operations undertaken upon various indications seem to speak favorably of this method. Dührssen advised the operation first in *Allgemeine Deutsche Auztezeitung,* April 1st, 1895. Nos. 7 and 8, where he spoke of the treatment of eclampsia. He said that in convulsions during pregnancy it was important to empty the uterus as quick as possible, and this could be done by competent hands through an incision in the anterior wall of the cervix and the lower segment of the uterus. Again at a meeting of the Obstetrical Society of Berlin, July 10th, 1896, he said : "The vaginal Cesarean section, according to my view, can only be done at a clinic and with trained assistance, and it is indicated where a closed and undilatable cervix endangers the life of the mother and in rare cases that of the child." He then gave a description of his method of operating which he had followed in a case April 24th, 1896, at the normal end of pregnancy, on a patient upon whom vagino-fixation was performed some years before. The large size and transverse position of the child caused him some fear of serious trouble. In this case he made a longitudinal incision through the anterior and posterior uterine wall up to the internal os and drained the uterus

by a tampon. On May 29th, 1896, he presented the mother and
child before the German Surgical Society and gave the following
indications for vaginal Cesarean section:

1. Abnormal conditions of the cervix and lower segment of
the uterus (carcinoma, myoma, rigidity, stenosis, partial pouch-
like distention of the lower uterine portion).

2. Dangerous conditions of the mother which may be removed
or relieved by prompt emptying of the uterus; affections of the
heart, lungs and kidneys.

3. Conditions of the mother where death is imminent and can
be foreseen.

The last two indications have only value in cases where the
cervix is closed and not dilatable or where the depressing influence
of labor pain should be obviated, as in affections of the heart and
lungs. In pregnancy complicated with cancer of the uterus he
advocated immediate vaginal section with subsequent extirpation
of the uterus, no matter at what time of pregnancy or at what
stage of labor this condition is encountered. His mode of pro-
cedure consists in curetting and cauterizing the carcinomatous
tissue with thermocautery, then he ligates the basis of the parame-
trium on each side, the vagina is then separated from the uterine
portion on all sides and, if necessary, the opening can be enlarged
by an anterior longitudinal incision. The uterus is pulled down
with tenaculum forceps and a rapid median incision made in
the anterior and posterior walls of the uterus sufficiently large
to extract the child. After the placenta has been removed the
uterus is split further up and the anterior and posterior cul-de-sac
opened so that the uterus can be grasped higher up with forceps
and pulled down to tie or clamp the ligaments from above. The
suturing of the peritoneum ends the operation.

His second case was a moribund woman, suffering from mi-
tral insufficiency and dilatation of both ventricles, with a high
degree of compensatory disturbance, very feeble pulse, orthopnea,
cyanosis and extensive edema. The child was slightly asphyxi-
ated. The operation lasted only about twenty minutes, but the
condition of the patient was such that she could not endure the
operation.

His third case of eclampsia was reported in *Centralblatt für
Gynekologie*, No. 2, 1901, p. 54. Patient was in her sixth month
of pregnancy; she died about twenty-three days after the opera-
tion, with symptoms of pulmonary tuberculosis and pneumonia,

with a return of edema and albuminous urine. As the pelvic organs had recovered their normal condition, he is justified in mentioning this case in his statistics as cured. He expresses the hope that he may see the time when the classical Cesarean section will be replaced by the vaginal section in grave cases of eclampsia, and advocates the latter method where the soft parts form a serious obstacle to labor, and the life of the mother or child is in danger, provided the cervix is closed or undilatable. In his monograph, "Der Vaginale Kaiserschnitt, 1896," he had already specified the indications for this operation plainly and comprehensively, and thought that, besides cancer of the uterus and eclampsia, uremia and premature detachment of the placenta, with internal hemorrhage, migh call for it when the cervix is closed and there is an absence of pain. Retroflexion, pouch-like distention, or kinking of the gravid uterus might also furnish an indication. He also claims that, with such an operation under deep anesthesia, 75 per cent. are saved, in eclampsia ; on the other hand, only 9 per cent. if left to spontaneous delivery.

Simon (*Munch. Medizin. Wochenschrift*, H. 21, 1903) reports three cases of vaginal Cesarean section. One case was operated on two years before for prolapse of the vagina and uterus, where anterior and posterior colporrhaphy, with amputation of the cervix, was made. The resulting condition, stenosis of the os uteri and vagina, complicated the act of confinement very much. Although the pains began three days before and the water had broken at that time, very little progress was made. The cicatricial stenosis of the os and the vagina proved too great an obstacle for spontaneous delivery. After having made an incision through the perineum and posterior vaginal wall, he made a sagittal incision in the anterior vaginal wall to the os uteri. As the cervix had been amputated before, there was some difficulty in hooking down the uterus. Close to the cicatricial border he separated the vagina from the uterus by a transverse incision and after having pushed the bladder up from the uterus he made a median incision of 10 cm. into the uterine wall which enabled him to grasp the head of the child with forceps and promptly deliver a living child weighing 8 pounds. The placenta followed soon, he then stitched the uterus up with eight deep silk sutures, the vagina with catgut and the perineum with silk sutures. Patient recovered fully and had no return of prolapse.

CASE II.—A I-para, thirty years old, had labor pains for

five days, water broke at the start. The os opened the first two days to admit two fingers and remained in that condition, though the pains continued. They gradually became spasmodic, fever set in, and patient became exhausted. The doctor found the head in the pelvis and pushing the cervix before it, but it would only admit two fingers. He was unable to assign any cause for such a condition, unless it was the rigidity which is at times met in older I-para. As there were signs of a living child he concluded to make a vaginal Cesarean section. The pelvis was normal, tetanic contraction of the uterus, pulse very rapid, and general condition feeble and exhausted. The child was extracted with forceps after having made an incision into the perineum and anterior portion of cervix and uterus. The mother died three days later, but child is living.

CASE III.—A I-para, twenty-four years old, at the end of pregnancy, had eight convulsions without any sign of pain and was in a comatose condition. He made dilatation with metreurynte₁ which caused slight pains but increased convulsions; two hours later he made vaginal section. The cord was prolapsed and pulseless; perforation of the head in this instance was considered the simpler way. Convulsions ceased, but coma lasted two days longer. Recovery of mother.

As I have mentioned before, Dührssen said that premature detachment of the placenta might also furnish an indication for vaginal Cesarean section. This soon found its practical application in a case reported by Ruhl (*Centralblatt für Gynckologie*, No. 47, 1901). Patient received a slight trauma to her abdomen the day previous. The following forenoon she had a few light pains, followed suddenly by a very severe pain as if something had ruptured inside; a moderate amount of blood was found in the vagina. Patient became unconscious and fell to the floor. One hour later Dr. Ruhl found the fundus uteri near the right border of the ribs; configuration of womb apparently normal, the right side of the corpus uteri, however, was more prominent. The fetal parts could not be felt distinctly, there were no movements, and the heartbeats were also extinguished. The vagina was filled with blood-clots; the cervix not obliterated; its walls were thickened and hard; the index finger could hardly be introduced; the membranes were intact, and became tense during pains; the placenta could not be felt near the os uteri. Patient regained consciousness and stated that her pains became harder. There was a

constant trickling of blood and especially so during labor pains. Ruhl introduced a colpeurynter to dilate the os, but about fifteen minutes later patient became unconscious again and deathly pale; the radial pulse was hardly perceptible. The anterior wall of the corpus and fundus uteri formed a projecting tumor of the size of a man's head, with a distinct elongated swelling, pointing toward the cervix. This led the doctor to the conclusion that there was internal hemorrhage, calling for immediate operation. Patient received saline infusions and the anterior and posterior wall of the cervix were incised, which caused no great hemorrhage. The time from the incision to the extraction of the child occupied six minutes. The placenta and large blood-clots followed spontaneously; hemorrhage ceased immediately after the uterus was emptied. Patient was in a precarious condition for about twenty hours; repeated saline infusions and injections of camphorated oil finally produced a change for the better. Ruhl thinks that the classical Cesarean section might present less technical difficulty in the hands of a surgeon not skilled in vaginal operations.

Another interesing case was recently reported by Ruhl, (*Centralblatt für Gynekologie,* No. 34, 1903) under the title: Hysterotomia vaginalis anter. for intense rigidity of the cervix, complicated by a tear in the lower uterine segment and parametrium. Patient, twenty-five years old, I-para, had been in labor five days before he saw her. She was extremely feeble; pulse 120 per minute; temperature 37.8°; she had constant pains; uterine walls very tense and sensitive on touch; contraction ring distinct, about three fingers width below the umbilicus. External genitals were not more developed than those of a girl twelve to thirteen years old, and exhibited no sign of pregnancy, such as swelling, softening, or discoloration. Pelvis, somewhat narrow, was funnel-shaped, vagina would admit two fingers. Head was in the pelvis, pushing the lower uterine segment before it. Cervix could hardly be reached; it was high up and far back in the pelvis; hard and not dilated at all; the external os was completely closed. The water had broken five days ago and there were tetanic contractions of the uterus. As there was danger of rupture of the uterus, he thought immediate delivery was indicated. There was some difficulty in bringing down the cervix and an effort to dilate it with instruments succeeded only so far as to admit one finger. He, therefore, made an anterior incision and delivered a living child by forceps. In spite of all care and

multiple incisions into the vagina he tore the latter in two places and had also a perineal tear into the rectum. The hemorrhage was so severe that patient collapsed in one-half minute and, though the placenta was immediately removed, and the uterus had contracted, the bleeding still kept up. The cause of the latter was found in a tear which started from the highest point of the anterior incision, in a transverse direction to the left side and lower part of the parametrium. These parts were immediately grasped by forceps, and, after a squirting artery was ligated, they were united by sutures, which checked the hemorrhage completely. The anterior incision and vaginal and perineal tears were also united and patient made a nice recovery.

Bumm was able to report in *Centralblatt für Gynekologie* H. 52, 1902, thirteen cases of his own, with one death of the mother due to coma in eclampsia. The indications for his operations were cancer of the uterus in two cases, eclampsia in five cases at seven, eight, and nine months' pregnancy. One case of nephritis at the ninth month; another case of nephritis, complicated with mitral stenosis and insufficiency, was operated on in her sixth month of pregnancy, under local anesthesia, and greatly improved after this. One case of severe chorea, operated on in her fifth month was delivered of twins and relieved of her chorea in about one week. One case was operated on for hemorrhage in her sixth month of pregnancy, which was due to vicious insertion of the placenta. In two cases of flat, rachitic pelvis, artificial induction of labor was resorted to. Braun Fernwald (*Wiener Med. Wochenschrift,* No. 28, 1898) made the operation on account of stenosis of the cervix and vagina; he made anterior and posterior incisions. Ehrendorfer reports a case (*Centralblatt für Gynekologie,* H. 16, 1903) where hyperemesis gravidarum formed the indication for operation at six months' pregnancy. The vomiting and salivation gradually ceased after one and one-half days and she made a nice recovery. Spinelli operated on a case in 1898 for cicatricial stenosis and hydramnios, with uncontrollable vomiting.

Dührssen reports another case of eclampsia (*Centralblatt für Gynekologie,* H. 16, 1903). The patient was a primipara; her legs and face began to swell about the end of January. On February 23rd, her vision became disturbed; she had severe headache and vomited twice a day. On February 26th, she had five convulsions; the vagina would only admit two fingers, was rigid and dark blue; cervix not obliterated and would only admit one finger.

An incision in the right vagino-perineal region gave sufficient access to his fist. After he had made an anterior incision into the womb he found it necessary to make one also in the posterior portion to admit his hand. After version was made a living child was delivered. Half an hour later the placenta was removed by pressure and as there was some hemorrhage due to uterine atony, a gauze tampon was introduced. The posterior incision required four, and the anterior five catgut sutures. The vaginal incision was stitched up with continued catgut sutures after having left a small gauze strip for drainage. The urine was free from albumen on March 1st and patient left the hospital in good condition on March 6th, 1903. To the above reported cases I can add one of my own, where I performed vaginal Cesarean section for eclampsia. Mrs. J. B., Bellevue, Ohio, age about thirty-five years, had four children. On April 22nd, 1903, at her seventh month pregnancy, she began to have convulsions at 8 o'clock P.M., and had about seven attacks before I saw her the next morning at 9 o'clock, with Drs. Richards and Harding. She was comatose since midnight; temperature 101°; pulse 95 per minute; she vomited several times; bowels moved three times. The cervix admitted the little finger, but an attempt at further dilatation with instrument proved futile, or, at least, would have been too slow. Two fatal cases in my practice gave me the conviction that more rapid delivery might have given better results. Whilst we were preparing for the operation, at the home of the patient, she had another convulsion. The posterior portion presented more favorably than the anterior and, owing to the surroundings and scant assistance, I thought I would follow the way which seemed the easiest for me, under the circumstances. On that ground I made my deepest incision into the posterior portion (about four and one-half inches long) and then a more shallow one into the anterior with the knife. Hemorrhage was not profuse, as I at once introduced my hand into the uterus, and made version. There was a little delay in getting the head of the child through the vaginal outlet, but the whole procedure occupied only about six minutes; the placenta was removed a few minutes later by pressure, and an iodoform gauze tampon introduced into the uterine cavity. The incisions were stitched up with catgut sutures and the whole operation was done in about twenty-five minutes. Patient rallied in a few hours; the child lived about one-half hour. I saw patient about two months later; she was in perfect health; a

small portion of the posterior incision had not united; urine was free from albumin.

There are over sixty cases of vaginal Cesarean section reported so far; the majority of them were undertaken for cancer of the uterus, but the number performed for puerperal convulsions is also increasing rapidly, and it seems that this trouble will furnish the chief indication for such an operation in the future. Most authorities seem to agree that rapid delivery is the most important measure to reduce the mortality in eclampsia. I also think that rapid dilatation with Bossi's dilator or similar instruments will be superseded in some measure by an operation, where the extent of incision or laceration is more under your control and where the wound gives more promise of healing by primary union.

The operative technic consists in exposing the uterine portion by a large speculum or retractors and grasping it by two pairs of forceps on either side of the os. A longitudinal incision of 5-7 cm. is then made in the anterior wall of the vagina, down to the os uteri. The loose cellular tissue is then opened with scissors, between the bladder and cervix. The bladder is pushed back, with a small piece of gauze, as far as the internal os, and, corresponding to that height, a sagital incision through the anterior wall of the cervix is added. The upper margins of the wound are again grasped by forceps in a manner similar to morcellement and vaginal myotomy. This exposes a further portion of the womb, the bladder is pushed up more, and another incision is made through the lower segment of the uterus. If this maneuver is repeated a few times an incision of 8-12 cm. can readily be made under the guidance of the eye and without opening the peritoneum. This incision is generally large enough to admit the hand and to extract a mature child. Should it, however, not be sufficient, a similar procedure can be followed at the posterior portion. In the majority of cases it is probably the best to wait for the natural expulsion of the placenta, or if it does not follow soon some pressure upon the uterus can be used. This operation is, no doubt, best done at a hospital, but it can also be done at patient's home, in case of necessity, as my case proves. As a rule, the incision in the anterior portion is preferable; I could, however, see no special difference in my case, and would in the future be guided by circumstances. These incisions can be closed by catgut sutures or other material. Dührssen recommends uterine tamponade, others, again, reject it.

Since the writing of this paper I had an opportunity of operating on a second case of puerperal eclampsia. Mrs. F. S., age twenty-five years, I-para, pregnant eight months, complained of headache for a few days. On September 6th, at 4 o'clock P.M., she began to have convulsions, and had about five before I saw her, with Dr. Stierwalt, at 8 P.M. The doctor had given her one-half gr. of morphine a short time before. She was in a deep stupor, but could be aroused for a few moments. The head was down in the pelvis, pushing before it the anterior portion of the womb, cervix partially obliterated, would admit two fingers. She had no pains; temperature 98.4°; pulse 114 per minute; urine thick with albumin; it was like a boiled egg. As I did not wish to operate in the country and by lamplight, if it possibly could be postponed, we concluded to wait till daylight and to give her morphine or chloral, in case of necessity. She was brought to the hospital about 6:30 o'clock the next morning, and had, in all, about eight convulsions; was cyanotic; tongue bleeding, dark and covered with dry crusts; some puffiness about her eyelids. Operation began about 7 o'clock; anterior incision was made about three inches long, bladder was pushed up further, but as tissues seemed so brittle I thought it best to make also a posterior incision about 4½ inches long; this admitted my hand, so that version could be made readily; child was delivered in about seven minutes; it took only a few gasps, but did not revive. Hemorrhage was not severe; placenta was removed five minutes later by pressure; operation lasted a little over one-half hour. Four catgut sutures united the anterior incision, and six the posterior. There was a shallow tear of the perineum, which extended also through the wall of the vagina, nearly up to the parametrium; this was united by continuous catgut suture. Salt solution and camphorated oil were injected; pulse 110 per minute; temperature normal. Consciousness returned, somewhat, about 6 o'clock P.M., the day of operation. Esbach's albuminimeter showed about 10 grams of albumin, after an equal quantity of water had been added to the urine; the next day it went down to ½ gram. Patient has still some albumin in the urine.

316 NAPOLEON STREET.

THE LIMITATIONS OF CESAREAN SECTION.

BY

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THE subject of Cesarean section has received great and well-deserved attention by the profession during the past few years. The reason for this lies in the gradually extended limits of its application in consequences of antisepsis, asepsis and improved technic of operation.

Hysterotomy, for the purpose of emptying the pregnant uterus during the period of viability or at term, is no longer a rare occurrence and has ceased to be, even when successfully performed for both mother and child, the wonder of the day. But not only the profession at large, but also the teachers of obstetrics stand remarkably divided as to the proper sphere of usefulness of this operation. There are those who believe that Cesarean section is performed entirely too frequently, and others who assert that it is not resorted to often enough. Both sides are honest in their contentions.

The author of this paper does not expect to bring about a perfectly harmonious view on the subject by what he may have to say at this time. What he hopes to accomplish by this effort, and the discussion which will follow, is to bring about a better understanding concerning the conditions calling for the operation. The writer does not for a moment doubt that, occasionally, though very rarely, the operation is performed unnecessarily. (This is true of any operative procedure.) But he is also firmly convinced that, more often, Cesarean section is performed entirely too late, sometimes discarded altogether, or not considered at all, even in the presence of well-marked relative indications.

The "horror" of the operation, belonging to the preaseptic period, still exists in the minds of many, and there appears to be a prevailing apprehension that, if the operation receives a more liberal endorsement on the part of obstetric authors and teachers, it will be too often and indiscriminately performed, and thus result in a fearful mortality. Others have maintained that, with

the more frequent adoption of Cesarean section, the science of obstetrics must suffer, and that there is great danger that the art of using the forceps, version, gradual and forcible dilatation, etc., will be lost. This solicitude on the part of some writers and teachers, certainly portrays a sad and serious want of faith and confidence in the ability, character, skill and judgment of the profession. Time and experience, it is hoped, will demonstrate that this is not so and that, upon calm consideration and prolonged reflection, all that is presented in this paper will, if not at once, finally receive the sanction of all who are deeply and honestly interested in this subject.

The author has been a teacher of obstetrics for more than 15 years, and has had a personal experience extending over 28 years, comprising 3,000 labor-cases, in both hospital and private practice. He has had, then, ample opportunities of observing for himself in hospital and out-door clinic work, in his own practice and in the practice of others, the different phases of the phenomena of labor under all the varying conditions of the numerous difficulties which complicate pregnancy, labor and confinement, and of witnessing the results of the various methods of treatment instituted for their relief. Because of this, he takes the liberty to speak upon this subject, without making an apology at home or writing to Europe for advice. You will kindly pardon this personal reference. It would not have been made except for the unkind and unjust criticism upon the writer's paper (Is Cesarean Section Justifiable in the Treatment of Placenta Previa?) read before this Association two years ago.

Nothing could be more advantageous and, indeed, more absolutely necessary than to be well acquainted with the work of the best men here and abroad. The writer has the highest regard for adverse criticism offered by men in authority and the multitude of *opinions* and *beliefs* expressed by timid, inexperienced and prejudiced men, practitioners and operators of limited observation, yet ever anxious to be heard, can be safely passed over by those whose judgment has been formed and matured by a long and studious past, rich in experience gained by actual and oft repeated contact with every variety of complicated labor.

The principal basis of this paper is an analysis of 88 Cesarean sections (including eight Porro operations) which have been reported by 52 different authors since January, 1900. The causes

for which the operation was performed are, in the order of their frequency, as follows:

For pelvic deformity .... 28 times.

Namely:
{
Flat rhachitic pelvis 13
Uniformly contracted, and
          rhachitic pelvis 7
Irregularly contracted, rhachitic pelvis, 4
Flat rhachitic pelvis
        complicated by eclampsia 3
Flat rhachitic pelvis
        complicated by tumor 1
}

For justo-minor or uniformly contracted pelvis .... 12 "
  " fibroid tumors obstructing labor .... 11 "
  " eclampsia...................... .... 6 "
  " hysteropexy .... 6 "
  " cicatricial contractions of vagina............ 5 "
  " causes not stated .... 4 "
  " simple disproportion between fetal head and
        pelvis, and lack of expulsive power ...... 3 "
  " carcinoma of cervix .... 3 "
  " carcinoma of rectum .... 2 "
  " placenta previa .... 2 "
  " retrodisplacement, impaction and
        adhesion of fundus .... 2 "
  " gunshot passing through gravid uterus .... 1 "
  " ovarian tumor obstructing labor .... 1 "
  " threatened rupture of uterus .... 1 "
  " congenital displacement of kidney .... 1 "

                                      88

Among the 13 cases of flat rhachitic pelvis is Coakley's case in which the operation was done three times in six and a half years, and Ill's case in which the operation was done twice in one year.

Of these 88 cases, 66 mothers and 56 children lived. In seven instances, however, it is not stated whether the mother lived or died, and in thirteen the same information is wanting as to the child. In the consideration of the maternal and fetal mortality, the cases where there is no reference as to the result to the mother and child were excluded. Thus we find that out of 81 mothers, 66 lived = 81.5 per cent. Again we find that the cause of death in five of the mothers was really due to malignant disease and the patients virtually recovered from the effects of the operation, death taking place two months, four months, one year and two years, respectively, after the operation. Counting these five cases as recoveries, 71, not 66, mothers lived. Maternal mortality = 12.34 per cent.

Of the 90[1] children born, 56 lived. If we exclude the thirteen cases where the result as to the child has been omitted, the fetal mortality amounts to 49 per cent. But a careful study of all cases reveals the fact that three of the children were dead before the operation; two succumbed during the operation; seven died within 24 hours; four within 48 hours; three lived two weeks, and one died of enteritis at the end of three months. If, then, we add to the list of children surviving the operation those who lived 24 hours and over, fifteen in all, the immediate fetal mortality is reduced to 25.26 per cent.

Those who claim that Cesarean section is performed too frequently will at once maintain that a maternal mortality of 12.34 per cent. and a fetal mortality of 25.26 per cent. are sufficient to prove the gravity of the operation and that, for this reason, it should not be resorted to as often as it is. Those who assert that the operation should have a wider field of application argue, and with good reason, that the apparent still high maternal and fetal mortality, is not due to the operation *per se*, nor to the cause for which it is performed; but rather to long delay, previous (injudicious, often awkward) futile attempts at delivery, lack of skill and experience of the operator, and imperfect preparation of the patient and her surroundings. All of these pave the way to excessive exhaustion, severe shock, profuse and repeated hemorrhage, and violent sepsis.

Many of those who oppose an extension of the limits of Cesarean section, resort to the same arguments (and occasionally ridicule and abuse) that were heard years ago against ovariotomy,

[1]There were two pairs of twins.

salpingo-oophorectomy, hysterectomy and, of late, of appendectomy and other operations of recent date.

When two years ago the author advocated, before this Society, the adoption of Cesarean section for certain cases of central placenta previa, there was quite a marked and weighty opposition, and but few supported the speaker in his recommendation of the operation for this always alarming obstetric complication. Much has been said and written against it since, and still to-day, nearly every new text-book on obstetrics and other recognized authorities on this subject admit that Cesarean section may be justifiable under favorable conditions in the class of cases of placenta previa then referred to.

The experienced, conscientious and scientific obstetricians avoid, whenever possible, operative interferences and they enjoy nothing better than the successful termination of a case of labor without manual or instrumental intervention. The charge that they are actuated *"by a desire to perform an operation,"* is uncalled for and unjust. However, it is not the intention to weary you with the "pros" and "cons" of the past and present. The object of this paper is to determine, as accurately as possible, the limits of the sphere of usefulness of Cesarean section in the light of recent advances in operative obstetrics, and for the sole purpose of obtaining the best results for both mother and child under the most trying circumstances.

The writer has endeavored to present the absolute and relative indications for Cesarean section (and the Porro-operation), in the form of a chart appended below. In this chart, under the head of *"In uniformly contracted pelvis"* may be included the pelvis of the true and hypoplastic dwarf and the contracted pelvis due to absence of the bodies of the sacral vertebra. Under the head of *"In simple flat rhachitic pelvis"* may be included the chondrodystrophic and the rhachitic dwarf pelvis and the spondylolisthetic pelvis. The excessive kyphotic, the kyphorhachitic, the scoliorhachitic, the kyphoscoliotic and the kyphoscoliorhachitic pelvis, not infrequently furnish strong indications for Cesarean section. Their management is the same as that given under the heading of *"In obliquely contracted pelvis"* and *"In transversely contracted pelvis."* The indications for Cesarean section in cases of pelvic deformity due to osteomalacia and morbus coxarius, may be considered under the same headlines. Other diseases of the bony and soft parts of the pelvis, as well as the

THE ABSOLUTE AND RELATIVE INDICATIONS FOR CESAREAN SECTION.

(RESPECTIVELY, THE PORRO-OPERATION.)

IN UNIFORMLY CONTRACTED PELVIS.

Conjugata vera.	Child living.	Child dead.
Below 6.5 c. m.	Indications for Cesarean section absolute at term ; or Induction of abortion. (?)	
6.5 to 8 c. m.	Cesarean section, relative.	Craniotomy.
8 to 8.5 c. m.	Induction of premature labor, 32d — 34th week. (?) Cesarean section, relative, 34th — 40th week.	Craniotomy.
8.5 to 9 c. m.	Induction of premature labor, 34th — 36th week. (?) Await spontaneous birth. Eventually : Forceps, symphysiotomy or Cesarean section.	Await spontaneous birth. Eventually { Forceps, Perforation or both.

IN OBLIQUELY CONTRACTED PELVIS.

All depends upon amount of contraction and size of child.	Await spontaneous birth. Eventually : Forceps or, if the contraction is very great, Cesarean section. Induction of premature labor. (?)	Await spontaneous birth. Eventually { Forceps, Craniotomy or both.

IN SIMPLE FLAT, RHACHITIC PELVIS.

Below 6.5 c. m.	Indications for Cesarean section absolute at term ; or Induction of abortion. (?)	
6.5 to 7.5 c. m.	Cesarean section, relative.	Craniotomy.
7.5 to 8 c. m.	Induction of premature labor between 32d -- 34th week. (?) Cesarean sect. 34th — 40th week.	Craniotomy.
8 to 8.5 c. m.	Induction of premature labor 32d — 34th week. (?) Prophylactic version 36 — 40 week. Cesarean section, relative, at home.	Craniotomy.
8.5 to 9 c. m.	Await spontaneous birth. Eventually { Forceps, Symphysiotomy or Cesarean section.	Await spontaneous birth. Eventually { Forceps, Perforation or both.

IN TRANSVERSELY CONTRACTED PELVIS

All depends upon amount of contraction and size of child.	Await spontaneous birth. Eventually { Forceps, Version or Cesarean section. Induction of premature labor. (?)	Await spontaneous birth. Eventually { Forceps, Craniotomy or both.

THE ABSOLUTE AND RELATIVE INDICATIONS FOR CESAREAN SECTION.

(RESPECTIVELY, THE PORRO-OPERATION.)

IN THE ABSENCE OF PELVIC CONTRACTIONS AND OTHER DEFORM-ITIES, CESAREAN SECTION IS ABSOLUTELY INDICATED:

In tumors of the uterus
"   "   "   ovaries
"   "   "   soft and bony parts of the pelvis
" congenital displacement of the kidney

When their presence and situation is such that the child cannot pass through the parturient canal at all or not without great danger to the mother, and when the tumor cannot be removed.

" excessive antiflexion of the uterus due to ventrofixation.
"   "   retroflexion "   "   when complicated by fixation or impaction of the fundus.
In advanced carcinoma of the cervix, vagina and rectum, singly or combined.
" *articulo mortis* or immediately after the death of the mother and the child living.
" extensive and unyielding cicatricial contraction of the vagina and cervix.
" perforating injuries of the uterus. (Gunshots, stabs, cattlehorns, etc.)

CESAREAN SECTION MAY BECOME AN ELECTIVE PROCEDURE IN CASES OF

Threatened rupture of the uterus, when forceps have failed or cannot be applied, and version is too dangerous.

Advanced disease of the heart, lung, kidney, etc.
Placenta previa.
Ablatio placenta.
Eclampsia.

During the period of viability or at term, when the os is very rigid or the cervix elongated and hard, when the attitude of the child is unnatural, rapid delivery imperative, and shock as well as hemorrhage to be avoided.

CESAREAN SECTION SHOULD BE FOLLOWED BY HYSTERECTOMY:

In the presence of diseased uterus. (Tumors; carcinoma (if localized); sepsis; atony of uterus (hemorrhage).

CESAREAN SECTION IS CONTRA-INDICATED:

When the life of the mother or child (or both) has been fatally compromised.
When the child is dead.
When sepsis is present, and general infection cannot be avoided.

In the absence of the absolute indications only.

WHERE AND BY WHOM SHOULD THE OPERATION BE PERFORMED?

WHERE?

In a modern hospital always, if possible.
At home, only if asepsis can be secured, or, when, in the presence of the absolute indications, it is impossible to convey patient to a hospital.

BY WHOM?

Always by one possessing the necessary skill and experience in the treatment of these cases.
By one less efficient only, when it is impossible to obtain the services of an adept surgeon and in the presence of the absolute indications alone.

different conditions calling for the operation, have been considered under separate heads. An interrogation mark has been placed after *"Induction of premature labor"* because its propriety is doubted by many and the author himself is convinced that better results, for both mother and child, can be obtained by Cesarean section properly performed at, or near, the end of term.

The 88 cases of Cesarean section referred to in the paper may be found in the *American Journal of Obstetrics and Diseases of Children,* Vols. 41, 42, 43, 44, 45, 46, & 47. The following are the reporters of the same: Weber, Thorne, Walker, Joshua, Biermer, Graffs, Batchelor, Hillmann, Olshausen, Freund, Hirst, Nietert, Draghiesco and Christian, Prokess, Kittredge, Routh, Costan and Payran, Baldy, Webster, Roberts, Williams, Boyd, Broadhead, Backhaus, Hare, Macleod, Campbell Wilson, Loffler, Dickinson, Routier (reports for Lambray), Pape, Davis, DeLee, Coakley, Glass, Ill, Fredericks, Coles, Norris, Kidd, Hepperlen, Boquel, Spencer, de Paoli, Bidone, Levinge, Jurowski, Brown, Heinricius, Zinke, Bonifield, Truesdale.

13 GARFIELD PLACE.

DR. CHARLES S. BACON, of Chicago (by invitation), said the operation to which Dr. Stamm had called attention was really a valuable addition to the means of treating certain cases. The history he had given showed that the operation had been developed in the right way. It had been eight years before the profession, and while it was not adopted with great enthusiasm at first, gradually it became more and more used, particularly for the indication for which it was first employed, namely, cancer of the uterus. In premature detachment of the placenta, a complication which defied all reasonable treatment, the operation seemed to be ideal. When, however, one considered the operation in cases of placenta previa, there was the same objection that had always obtained in regard to the typical operation. The other means of treating placenta previa were so perfect, so far as the mother was concerned, that it would be only in the case of a very competent operator, and in probably rare instances, that this operation or the typical one would be chosen.

He believed that there was a future for vaginal Cesarean section in cases of puerperal eclampsia, but only in those that were very carefully selected.

In regard to the paper of Dr. Zinke, those who had had experience with the induction of labor in cases of moderate uterine contraction and had not only induced labor at the right time, but had cared for the child at the right time, by observing all the technique in caring for a premature child, would not be persuaded to aban-

don that method in certain cases. It was safe for the mother in properly selected cases, where the previous history had been carefully estimated. It was safer for the mother, and nearly as safe for the child. In spite of all this there was some risk attending Cesarean section.

DR. WALTER B. DORSETT, of St. Louis, Mo., mentioned a case of placenta previa in a woman six months pregnant, from a fall, which he saw recently. The woman first began to lose amniotic fluid, and lost a great deal of blood. In making an examination he found placenta previa lateralis, with possibly an inch of the margin of the placenta grown to the edge of the cervix, and having been called without any chance to pack his grip, he tamponned as quickly as he could, and within five or six hours he made the incisions indicated by Dr. Stamm, namely, anteriorly, posteriorly and laterally, and delivered a child of six months and ten days. The first week the child gained five and one-quarter ounces.

It seemed to the speaker from what he had gathered from the remarks of the essayist, that these operations were advocated more particularly in cases of maglignant disease of the cervix than for placenta previa, but his experience with placenta previa prompted him to believe that possibly it was more applicable in that condition than it was in cancer of the uterus.

DR. FREDERICK BLUME, of Pittsburg, Pa., asked whether Dr. Dorsett would advise incision of the cervix in a six months' gestation in every case of placenta previa.

DR. DORSETT replied that he would in every case of placenta previa with the experience he had had with this case.

DR. EDWIN RICKETTS, of Cincinnati, O., said that Dr. Stamm had referred to having administered morphia and hydrate of chloral in a case of puerperal eclampsia. Before the anterior and posterior incisions were made, he thought it would be wise to administer veratrum viride in the doses that were usually prescribed at the present time.

DR. J. HENRY CARSTENS, of Detroit, Mich., said the paper of Dr. Stamm had reference to cases of normal pelves. When the pelvis was contracted, vaginal Cesarean section was out of the question, unless one had to deal with a case of five or six months' pregnancy. Vaginal Cesarean section was the remedy in cases of puerperal convulsions, but in a case of puerperal convulsions, where the woman had one convulsion and then recovered consciousness, it required premature slow delivery; but in a case of puerperal convulsions, where the woman had one convulsion after another, and was unconscious, such as he recently had, where the patient was subject to retinitis pigmentosa, a different treatment was necessary.

Vaginal Cesarean section should be done when there were indications of a normal pelvis with puerperal convulsions of a severe type.

In regard to cutting in three or four directions, in some cases he had found that it was the internal os that had to be opened

up, and he would not hesitate to cut as high as it. If this was done, the opening was sufficiently large to introduce the hand and turn, or if the placenta was cut and forceps was applied and the head delivered, tissues beyond the incision would be torn. One might tear into the leaflets of the broad ligament. He might tear the uterine arteries and have a great deal of trouble in controlling the hemorrhage therefrom. He objected, therefore, to cutting on each side, but he believed in cutting in front, and in rare cases in cutting in the rear, and through an anterior incision one could go quite a distance in the direction of the median line, thereby having very little trouble in controlling hemorrhage.

In regard to what Dr. Zinke said about ovarian and uterine tumors, the speaker said that sometimes we had to deliver women with ovarian tumors, and this was done without very much trouble. If an ovarian tumor on one side was small and did not grow rapidly, one could let the woman go on to term and deliver her safely. If she had fibroid tumors of the fundus, she could be delivered without Cesarean section, provided she had a normal pelvis. He thought Dr. Zinke should qualify his remarks in speaking of uterine tumors that were situated in the cervix and obstructing labor.

Dr. Rufus B. Hall, of Cincinnati, O., was asked to see a patient at Xenia, O., a year or more ago. The woman had been in labor two or three days. She lived seventeen miles from Xenia. She was placed in an express wagon on a bed and hauled to Xenia to the hospital. By request he left on the first train and reached Xenia about daylight. He examined the patient and found she had a filbroid tumor in the lower segment of the uterus which completely filled the pelvis. By vaginal examination the tumor presented like a child's head in the second stage of labor. The cervix could not be found. The amniotic fluid was discharged early in labor. The woman was supposed to be seven months pregnant. It was her first child, yet she had been married sixteen years. There was a foul-smelling discharge escaping from the vagina. The woman was greatly prostrated from the long labor, but the attending physician had relieved her materially by large doses of morphine. On opening the abdomen the whole peritoneal cavity and half of the uterus were a dark purple, very much like the pus which came from a large ripe boil. This was the appearance of the uterus. He had supposed the child was dead. He did a hysterectomy without opening the uterus; there was great difficulty in getting the tumor out of the pelvis, but finally he succeeded in removing it. The woman left the hospital at the end of four or five weeks, and had since remained well.

He emphasized the fact that the mortality following Cesarean section was very great if there had been attempts at delivery by forceps, and the woman had been in labor a long time and version and other manual manipulations had been tried. If obstetricians were to do Cesarean section with a low mortality to both mother

and child, it ought to be done before attempts at delivery were made by the natural passages.

DR. CHARLES L. BONIFIELD, of Cincinnati, O., said that vaginal Cesarean section was certainly valuable in one class of cases, those in which there was danger of infection in doing the suprapublic operation. In cases of cancer of the cervix, where the cancer was movable and the pelvis was filled with the cancerous mass, it was impossible to operate in this way. When an operator was called to see a case and found that numerous vaginal examinations had been made by the midwife or attendant, there was great danger of infection already existing. Here the vaginal operation was a valuable procedure. In other cases ordinary Cesarean section was so easy that it was infinitely preferable to avoid the delay in delivering the child through the pelvis, and the danger in a clean case might be slight.

As to the use of veratrum viride, there was practically no case of puerperal convulsions that could not be controlled by it if the practitioner who was giving it had the courage to give enough of the drug. In an ordinary case with convulsions give thirty minims of Norwood's tincture hypodermically, and repeat half the dose in thirty minutes more, and then keep on giving it every thirty minutes until the desired effect is obtained.

DR FREDERICK BLUME, of Pittsburg, Pa., thought the term vaginal Cesarean section was inappropriate.

He had done his share of obstetrical practice, and had never found it necessary to incise the cervix through the lower uterine segment.

DR. MILES F. PORTER, of Fort Wayne, Ind., said that if he understood Dr. Stamm correctly he visited the woman at about 8 o'clock in the evening and concluded not to operate until the next morning. Then a vaginal incision was made without any attempt to deliver the woman. If this was correct, in his judgment it was a long way from being either good surgery or good judgment.

DR. JAMES F. BALDWIN, of Columbus, O., said practitioners had been told repeatedly by German clinicians not to resort to Cesarean section in cases in which forceps had been attempted, or in which repeated examinations had been made. He thought this was a mistake. During the time covered by Dr. Zinke's paper, since 1900, he had made five, possibly six, Cesarean sections, without a maternal or fetal death. In one of these the woman was in labor eight days. She had been examined by half a dozen physicians. She had a temperature of 101°, pulse 120. She recovered. Another woman was in labor forty-eight hours. Forceps had been applied. She was examined by several physicians previous to his operating on her. She recovered entirely from the operation.

With reference to Dr. Stamm's paper, he thought it would be less dangerous to a woman to make a rapid Cesarean section in some of the cases described by him than to do the work through the vagina. If there was a rigid cervix, a small vagina, a rigid perineum, where there was laceration extending into the uterine

tissue, laceration of the vagina and perineum, extending into the rectum, there would be less traumatism if a rapid operation was made; there would be less danger of sepsis from a rapid Cesarean section than from working through the vagina.

DR. STAMM, in closing, said he might not have expressed himself clearly in regard to the first case. The patient had no pains. The neck was obliterated, the internal os was dilated, but only two fingers could be admitted, and the progress made from 8 o'clock in the evening until 6 in the morning was about the same. There was no further dilatation, and he thought it was better to make an incision than to use forcible dilatation, because he had lost two patients by that method.

Relative to the remarks of Dr. Dorsett concerning placenta previa, he did not give any prominence to this subject in his paper simply because the literature did not contain any such cases, though Duhrssen had pointed out that indication in 1895.

As to the remarks of Dr. Ricketts about veratrum viride, he had seen three patients die from the administration of this drug when given by others in puerperal convulsions.

The remarks of Dr. Baldwin that abdominal Cesarean section was less dangerous than vaginal Cesarean section were not borne out by the records.

DR. ZINKE, in closing, said he had maintained from the beginning that those who criticized his former papers adversely never read them carefully. There never was a history of a Cesarean section for any other purpose than placenta previa so glorious as the six successful cases in which five of the mothers were saved and only two children lost. He had not had an opportunity to perform Cesarean section for placenta previa, but he would not hesitate if he met with a suitable case.

THE GILLIAM OPERATION: A CLINICAL CONTRIBUTION.

BY

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THE presentation of this clinical contribution to the knowledge of correcting retrodisplacements of the uterus is desirable for a twofold reason. First, to support and to carry the knowledge of a really valuable and safe operative procedure. Secondly, to do honor to its originator, a valuable member of this Society.

The writer is not very apt to run in ruts and endeavors to carefully avoid extreme opinions. He was, therefore, slow in accept-

ing Dr. Gilliam's operation, but as time has gone on he has become much gratified with the results, and has had fewer patients return with relapses than from any other applied operation.

Since Dr. Gilliam suggested this operation to us three years ago, the writer has performed one hundred and twenty-six operations for the correction of retrouterine displacements. Of these, eighty-six are recorded as having been done by the Gilliam method, twenty were Adams-Alexander operations, sixteen were ventral fixations, three vaginal fixations, and one the Mann operation. In other words, over 68 per cent. were done after the Gilliam method. There were no deaths. This number does not represent all his experience, for his assistants have probably done a like number which are not recorded in this paper. At first this operation was done only in those cases complicated by tubo-ovarian diseases or by traumatic injuries. As the results were watched and appreciated it was extended to the uncomplicated cases or ones where complication necessitated a dilation of the cervix and curettage of the endometrium. Of such cases there have been thirty. In looking over the records one can distinctly see how the operation as it grows in favor gradually becomes more frequent in the uncomplicated cases.

Many of the cases were examined again and again and the correct position of the uterus noted. No one procedure, however, will give us absolute results, nor do we look for such infallible measures.

Within a month these patients have all been written to, and either a personal or a written report was received in sixty-one cases. Fifty-one reported themselves as entirely well, six as markedly improved, and four as no better. Among all these, five are pregnant and two have given birth normally. It will be interesting to consider the cases reported as no better. One case had extensive tubal inflammation with many adhesions, for which a resection of the tubes was done, the uterus remaining in the normal position. She was always a weakly woman.

The second case is not relieved, though the uterus is in normal position. The uterus and ovaries are both sensitive to touch.

The third case left the hospital in excellent condition free from all pain. She soon became melancholy and remains so to the present time. This woman had puerperal mania after the birth of her second child. It seems hardly fair to the operation to class this case as no better. I speak of it to complete my report.

These cases are failures only because the patients were not relieved of their symptoms. The following case is the only failure recorded in reference to a relapse and is especially interesting because the very intelligent patient submitted herself to a second abdominal section to ascertain the cause of the failure and to correct, if possible, the deformity.

Miss E. B., a teacher, presented herself in the autumn of 1901 with a retroflexed uterus which made standing a torture. Dysmenorrhea prevented her from following her occupation for two days in a month. After all sorts of endeavors to relieve her had failed, she desired an operation, which was done on February 4, 1902. The cervix was dilated, the uterus curetted, and a Gilliam operation performed. She promptly recovered, and in six weeks was back at schoool. She remained well for about ten months, when she began to have a recurrence of backache increased by standing. An examination made in April of this year showed the uterus in retroflexion and freely movable. The menstrual pain had not returned. Postural treatment and pessaries failed to correct the malposition.

A second operation was done on June 22 of this year. On opening the abdomen it was found that the uterus was freely movable, there being no adhesions anywhere except a slight omental agglutination at the peritoneal scar. On lifting the uterus and round ligaments into view, it was noticed that that part of the round ligament beyond the suture was atrophied, while the near end had remained in its normal thickness. The writer thinks it probable that the suture was drawn too tight, strangulating the central artery. Whether this explains the separation of the adhesion is a matter of uncertainty. The stump of the ligament was again fastened after a modified Gilliam operation. To give additional security, two chromicized sutures were placed just above the os internum and fastened to the anterior abdominal peritoneum.

Thus this case teaches one thing, that an atrophy of the distal end of the ligament may take place. Whether the writer's explanation is correct is a matter of future observation. The artery supplying the round ligament runs in the direction from the uterus outward, and when it becomes obliterated by suture we have one explanation for some of the failures of the intra-abdominal shortening of the round ligament.

When Dr. Gilliam first suggested his operation, the writer was averse to piercing the whole abdominal wall, fearing a weakness from which a hernia might result. He therefore modified the

NO.	DATE	NAME	AGE	M. OR S.	NO. CHILDREN	DIAGNOSIS	OPERATIONS	IMMEDIATE RESULTS	REMARKS
1	Oct. 8, 1900	C. H.	27	M	1 miscarriage	Retroflexed uterus; adherent uterus	Dilatation of cervix; curettage; Gilliam operation; separation of adhesions	Good	September 5, 1903. Is very well; is now pregnant
2	Oct. 11, 1900	E. P.	42	M	1	Hyperplastic endometritis; laceration of cervix and perineum; retroflexed adherent uterus	Curettage; amputation of cervix; perineorrhaphy; separation of adhesions; Gilliam operation	Good	
3	Nov. 30, 1900	C. C.	28	M	None	Retroflexed uterus	Gilliam operation	Good	September 5, 1903. Is very well
4	Dec. 7, 1900	A. O.	34	S		Retroflexed uterus	Gilliam operation	Good	
5	Dec. 8, 1900	B. H.	32	M	2 abortions	Retroflexed uterus; adherent left ovary	Curettage; Gilliam operation	Good	December 14, 1901. Had a baby, born normally
6	Dec. 21, 1900	N. H.	36	M	1	Hyperplastic endometritis; laceration of perineum; retroflexed uterus	Curettage; perineorrhaphy; Gilliam operation	Good	
7	Jan. 26, 1901	R. E.	49	M	1 miscarriage 3 children	Laceration of perineum; prolapse of uterus	Perineorrhaphy; Gilliam operation	Good	
8	Feb. 2, 1901	R. L.	30	M	None	Hyperplastic endometritis; retroposition and version; ectropium of the cervix	Curettage; amputation of cervix; Gilliam operation	Good	September 4, 1903. Is very well
9	Feb. 28, 1901	M. U.	35	S		Retroflexed uterus; hyperplastic endometritis	Dilatation of cervix; curettage; Gilliam operation	Good	December, 1902. Is very well
10	Mar. 16, 1901	H. N.	38	M		Laceration of cervix and perineum; retroverted uterus	Curettage; amputation of cervix; trachelorrhaphy; Gilliam operation	Good	Is very well at the present date
11	April 11, 1901	K. H.	27	M	1	Hyperplastic endometritis; laceration of cervix; retroflexed uterus	Curettage; amputation of cervix; Gilliam operation	Good	
12	May 2, 1901	P.	30	M		Laceration of cervix and perineum; retroflexed uterus	Curettage; amputation; trachelorrhaphy; Gilliam operation	Good	Very well

No.	Date	Initials	Age	Cond.	Children	Diagnosis	Operation	Result	Remarks
13	May 13, 1901	M. F.	30	S		Retroflexed uterus; prolapsed ovary; hyperplastic endometritis	Curettage; Gilliam operation	Good	An Adams-Alexander operation failed because of very thin ligaments; when the abdomen was opened the ligaments were found very attenuated; still a Gilliam operation was performed
14	June 14, 1901	B.	25	M	1	Hyperplastic endometritis; retroflexed uterus	Curettage; Gilliam operation	Good	December 13, 1902. Is very well
15	Sept. 21, 1901	M. C.	33	M	1 miscarriage; 4 children	Retroflexed adherent uterus; cystic ovaries	Punctured cyst of left ovary; excised portion of right ovary; Gilliam operation	Good	September 5, 1903. Is perfectly well
16	Sept. 24, 1901	A. S.	44	M	3	Hyperplastic endometritis; retroflexed adherent uterus	Curettage; Gilliam operation	Good	
17	Sept. 28, 1901	E. B.	32	M	3 miscarriages; 1 child	Laceration of cervix; retroflexed adherent uterus	Amputation of cervix; Gilliam operation	Good	September 5, 1903. Is not well, having contracted an inflammation of the bladder some time after operation and after dismissal; is pregnant since the end of December, 1902; this is the first pregnancy she is carrying to the end since the first child; she is well of her old symptoms
18	Oct. 4, 1901	S. A.	30	S		Retroflexed uterus; fibro-myomata	Myomectomy; Gilliam operation	Good	September, 1903. Is well
19	Oct. 19, 1901	S. R.	36	M	1	Laceration of cervix and perineum; retroflexed uterus	Amputation of the cervix; perineorrhaphy; Gilliam operation	Good	
20	Oct. 22, 1901	C. S.	24	S		Retroflexed and retroposed uterus	Curettage; stretched utero-sacral ligament; Gilliam operation	Good	January, 1903. Very good
21	Nov. 4, 1901	J. F.	25	S		Hyperplastic endometritis; retroflexed uterus	Dilatation of cervix; curettage; Gilliam operation	Good	
22	Nov. 7, 1901	A. W.	37	M	3	Laceration of cervix and perineum; retroflexed uterus	Trachelorrhaphy; perineorrhaphy; Gilliam operation	Good	December 24, 1902. Perfect health. June, 1903. Is very well

NO.	DATE	NAME	AGE	M. OR S.	NO. CHILDREN	DIAGNOSIS	OPERATIONS	IMMEDIATE RESULTS	REMARKS
23	Nov. 7, 1901	D. C.	26	S		Retroflexed uterus; dermoid fistula of coccyx	Gilliam operation; removal of coccygeal fistula	Good	
24	Nov. 19, 1901	D. W.	19	M		Hyperplastic endometritis; retroflexed adherent uterus, tubes and ovaries; double pyosalpinx	Curettage; ablation of tubes; Gilliam operation	Good	December 5, 1902. Well
25	Nov. 23, 1901	K. O.	25	S	None	Retroposition and retroversion, with adhesions	Shortening of utero-sacral ligaments; Gilliam operation	Good	
26	Dec. 3, 1901	E. D.	28	M	?	Retroverted uterus	Gilliam operation	Good	September 5, 1903. Is well from symptoms operated on, and gave birth to a child January, 1903; has some trouble with urine (written communication)
27	Dec. 21, 1901	M. S.	22	S		Retroverted uterus; stricture of os internum; hyperplastic endometritis	Dilatation of cervix; curettage; Gilliam operation	Good	
28	Jan. 4, 1902	G. B. S.	34	S		Stricture of os internum; retroflexed uterus; hematoma of both ovaries	Dilatation of the cervix; Gilliam operation; exsection of hematoma	Good	May, 1903. Is very well
29	Feb. 4, 1902	E. B.	28	S		Stricture of os internum; retroflexed uterus	Dilatation of cervix; curettage; Gilliam operation	Good	June 22, 1903; Bag operated on again for relapse; see Case No. 84
30	Feb. 5, 1902	E. B.	36	M	1	Retroflexed adherent uterus, tubes and ovaries; hyperplastic endometritis	Dilatation of cervix; curettage; separation of adhesions; ablation of tubes; resection of portion of ovary; Gilliam operation	Good	December 12, 1902. Is well
31	Feb. 8, 1902	C. H.	26	M	1	Retroflexed adherent uterus	Resection of tubes only; separation of adhesions; Gilliam operation	Good	September 8, 1903. The uterus is in good position, freely movable, yet she is no better; always was a weakly woman

No.	Date	Initials	Age		Parity	Diagnosis	Operation	Result	Follow-up
32	Feb. 18, 1902	R. L.	22	S		Elongation of the cervix; retroflexed uterus	Curettage; amputation of cervix; Gilliam operation	Good	Well
33	March 1, 1902	R. McG.	33	M	1 miscarriage 6 children	Laceration of cervix and prolapse of uterus	Amputation of cervix; anterior and posterior colporrhaphy; perineorrhaphy; Gilliam operation	Good	September 5, 1903. Is perfectly well
34	March 8, 1902	A. N.	27	M	None	Salpingo-oovaritis; chronic retroflexed uterus	Resection of tubes only; separation of adhesions; Gilliam operation	Good	
35	March 11, 1902	A. A.	36	M	3	Laceration of cervix and perineum; retroflexed adherent uterus	Curettage; amputation of cervix; separation of adhesions; Gilliam operation	Good	April, 1903. Is in fair health; uterus is in perfect antiposition and freely movable
36	March 13, 1902	E. S.	24	M	1	Retroflexed adherent tubes and ovaries; femoral hernia	Curettage; separation of adhesions; Gilliam operation; herniotomy	Good	September 5, 1903. Is much improved except for pain in left iliac
37	Mar. 15, 1902	D. T.	23	M	1 miscarriage 1 child	Complete perineal laceration of cervix; retroflexed uterus; hyperplastic endometritis	Curettage; perineorrhaphy; Gilliam operation	Good	
38	Apr. 23, 1902	S. S.	33	M	1	Laceration of cervix and perineum; retroflexed adherent uterus, tubes and ovaries; chronic appendicitis	Trachelorrhaphy; perineorrhaphy; appendectomy; Gilliam operation	Good	May, 1903. Is in excellent health; uterus in normal position
39	May 1, 1902	M. Y.	34	M	None	Retroverted uterus	Gilliam operation	Good	August 28, 1903. Is now pregnant for the first time after many operations for sterility
40	May 9, 1902	C. R.	23	M	3	Retroflexed uterus; adherent tubes and ovaries; hyperplastic endometritis	Curettage; separation of adhesions; Gilliam operation	Good	
41	May 20, 1902	D. M. A.	24	S		Retroflexed uterus	Gilliam operation	Good	June, 1903. Not relieved, though uterus is in normal position; uterus and ovaries are very sensitive
42	June 20, 1902	N. R.	33	S		Retroverted uterus. Prolapsed ovary	Gilliam operation; resection of cyst of ovary	Good	September 4, 1903. Is very well; has a slight pain in left iliac
43	June 27, 1902	K. B.	24	S		Hyperplastic endometritis. Retroflexed uterus	Dilatation of cervix; curettage; Gilliam operation	Good	September 8, 1903. Is well

NO.	DATE	NAME	AGE	M. OR S.	NO. CHILDREN	DIAGNOSIS	OPERATIONS	IMMEDIATE RESULTS	REMARKS
44	Sept. 10, 1902	D. K.	27	M	None	Stricture of os internum; hyperplastic endometritis; retroflexed uterus	Dilatation of cervix; curettage; Gilliam operation	Good	September 8, 1903. Is very well
45	Oct. 1, 1902	C. G. K.	46	M	5	Retroflexed uterus	Gilliam operation	Good	June, 1903. Is very well
46	Oct. 7, 1902	T. Y.	32	M	4	Retroflexed uterus	Gilliam operation	Good	September 5, 1903. Is much improved, except for increased menstrual flow and some iliac pain; uterus normal position
47	Oct. 10, 1902	L. H.	36	M	?	Retroflexed uterus	Gilliam operation	Good	June, 1903. Is very well
48	Oct. 10, 1902	I. Price	36	M	?	Laceration of perineum. Retroflexed uterus; chronic appendicitis	Perineorrhaphy; appendectomy; Gilliam operation	Good	September 5, 1903. Is very well
49	Nov. 4, 1902	E. H.	32	M	4	Laceration of cervix and perineum; retroflexed uterus	Trachelorrhaphy; perineorrhaphy; Gilliam operation	Good	
50	Nov. 5, 1902	L. D. S.	33	M	2	Retroflexed uterus	Gilliam operation	Good	
51	Nov. 8, 1902	E. Y.	38	M	4 children; 1 miscarriage	Laceration of perineum; retroflexed uterus	Perineorrhaphy; Gilliam operation	Good	
52	Nov. 8, 1902	A. C. B.	39	M	3	Hyperplastic endometritis; laceration of perineum; retroflexed uterus; prolapse of anterior walls of vagina	Curettage; perineorrhaphy; anterior colporrhaphy; Gilliam operation	Good	September 4, 1903. Is better; slightly nervous
53	Nov. 22, 1902	M. Y.	35	M	1	Laceration of cervix and perineum; retroflexed uterus; prolapse of uterus	Curettage; amputation of cervix; perineorrhaphy; Gilliam operation	Good	September 4, 1903. Is very well; condition excellent (some pain in perineum)
54	Nov. 25, 1902	A. H.	32	M	5	Retroflexed uterus	Gilliam operation	Good	September 5, 1903. Pregnant two months; is very well
55	Dec. 5, 1902	S. V.	28	S		Retroflexed adherent tubes and ovaries; tubal gestation; R. side	Curettage; ablation of R. tube; Gilliam operation	Good	

No.	Date	Initials	Name	Age		Pregnancies	Diagnosis	Operation		Remarks
56	Dec. 16, 1902	E. J. H.		41	M	1	Laceration of cervix and perineum; retroflexed adherent uterus, tubes and ovaries	Curettage; trachelorrhaphy; perineorrhaphy; Gilliam operation	Good	August 1, 1903. Very well
57	Jan. 9, 1903		L. H.	29	M	1	Retroverted uterus	Gilliam operation	Good	
58	Jan. 17, 1903		L. M.	24	M	2	Laceration of cervix and perineum; retroflexed uterus	Curettage; trachelorrhaphy; perineorrhaphy; Gilliam operation	Good	
59	Jan. 20, 1903		H.	39	M	None?	Hyperplastic endometritis; retroflexed adherent uterus, tubes and ovaries; hematoma of both ovaries	Curettage; exsection of hematoma; Gilliam operation	Good	September 5, 1903. Is very well; except when under great exertion has a backache
60	Jan. 24, 1903		A. C. M.	42	M	5	Laceration of cervix and perineum; retroflexed uterus; chronic appendicitis; fibromyomata	Trachelorrhaphy; perineorrhaphy; myomectomy; Gilliam operation; appendectomy	Good	September 5, 1903 Is very well; no menstrual pain; ph. ex. shows normal conditions
61	June 30, 1903		M. F.	29	M	None	Retroflexed uterus; hyperplastic endometritis	Curettage; Gilliam operation	Good	September 3, 1903. Uterus is in normal position: still some backache
62	Jan. 31, 1903		A. P.	25	M	1	Laceration of cervix; retroflexed uterus	Curettage; trachelorrhaphy; Gilliam operation	Good	
63	Feb. 6, 1903		A. N.	46	M	6 miscarriages; 10 children	Laceration of cervix and perineum; prolapse of uterus	Curettage; amputation of cervix; perineorrhaphy; Gilliam operation	Good	
64	Feb. 10, 1903		T.	42	M	1	Hyperplastic endometritis; laceration of perineum; retroflexed uterus	Curettage; perineorrhaphy; Gilliam operation	Good	September 4, 1903. Result very good; uterus still a little large
65	March 1, 1903		J.	24	M	1	Laceration of cervix; retroflexed and retroposed uterus	Curettage; amputation of cervix; Gilliam operation	Good	September 5, 1903. Has been thoroughly well and is pregnant since three months (one child 3½ years old)
66	March 7, 1903		A. M.	39	M	3	Laceration of cervix and perineum; retroflexed uterus	Curettage; trachelorrhaphy; perineorrhaphy; Gilliam operation	Good	Irregular flow: no backache or bearing down; ph. ex. shows fissure in ano; uterus in normal position
67	March 11, 1903		K.	47	M	?	Retroflexed uterus; double hydrosalpinx	Curettage; ablation of tubes; Gilliam operation	Good	September 5. Is perfectly well; menstruates normally

NO.	DATE	NAME	AGE	M OR S	NO. CHILDREN	DIAGNOSIS	OPERATIONS	IMMEDIATE RESULTS	REMARKS
68	April 4, 1903	L. M.	28	S		Stricture of os internum; hyperplastic endometritis; retroflexed adherent uterus	Dilatation of cervix; curettage; Gilliam operation	Good	September 3. Is very well
69	April 12, 1903	C. S.	39	M	?	Laceration of perineum; retroflexed uterus	Curettage; perineorrhaphy; Gilliam operation	Good	June, 1903. Is very well
70	April 19, 1903	F.	36	M	3	Hyperplastic endometritis; retroflexed adherent uterus, tubes and ovaries	Curettage; amputation of cervix; resection of tubes only; separation of adhesions; Gilliam operation	Good	September 3. Is very well
71	April 22, 1903	A. W.	33	M	?	Double pyosalpinx; retroflexed uterus	Ablation of tubes; removal of left ovary; Gilliam operation	Good	September 8. Is very well
72	May 5, 1903	M. G.	32	M	?	Retroflexed uterus; prolapsed ovary	Gilliam operation	Good	
73	May 16, 1903	C. D.	23	M	2	Hyperplastic end metritis; laceration of perineum; retroflexed uterus	Curettage; perineorrhaphy; Gilliam operation	Good	September 5, 1903. Left hospital in excellent condition; soon became melancholy and remained so to the present time; was melancholy after birth of second child
74	May 26, 1903	M. H.	30	M	1	Laceration of cervix and perineum; retroflexed uterus	Curettage; amputation of cervix; perineorrhaphy; Gilliam operation	Good	September 3, 1903. Is very much improved; has slight backache and pain in left iliac since two weeks; sudden cessation of menses two weeks ago
75	May 28, 1903	B.	30	M	2	Laceration of cervix and perineum; retroflexed uterus	Curettage; trachelorrhaphy; perineorrhaphy; Gilliam operation	Good	
76	May 29, 1903	C. N.	40	M	5	Laceration of cervix and perineum; retroverted uterus	Curettage; amputation of cervix; perineorrhaphy; Gilliam operation	Good	August, 1903. Very good condition

No.	Date	Name	Age		No.	Diagnosis	Operation	Result	Remarks
77	June 1, 1903	S. T.	37	M	2	Hyperplastic endometritis; laceration of cervix; retroflexed uterus	Curettage; trachelorrhaphy; resection of portion of ovary; Gilliam operation	Good	September 5, 1903. Is well with exception of some menstrual pain; uterus is in normal position
78	June 2, 1903	A.	28	S	1	Stricture of os internum; hyperplastic endometritis; retroflexed uterus	Dilatation of the cervix; curettage; Gilliam operation	Good	September 8, 1903. Good; says "she is a new woman"
79	June 7, 1903	S. W.	29	M		Hyperplastic endometritis; laceration of cervix; retroflexed uterus; simple cyst of ovary	Curettage; amputation of cervix; resection of portion of ovary; Gilliam operation	Good	September 3, 1903. Is much improved; still has slight backache and some leucorrhea
80	June 13, 1903	H. B.	31	M	1	Laceration of cervix and perineum; retroflexed uterus	Curettage; amputation of cervix; perineorrhaphy; Gilliam operation	Good	September 3, 1903. Is much improved; ph. ex. shows organs in perfect condition
81	June 15, 1903	L.	31	S.		Stricture of os internum; retroflexed uterus	Dilatation of cervix; curettage; Gilliam operation	Good	February 8, 1903. Now well; four years ago had a Mathew D. Mann operation; the ligaments stretched out and became much atrophied
82	June 16, 1903	S.	23	S		Stricture of os internum; retroflexed uterus	Dilatation of the cervix; curettage; Gilliam operation	Good	September 5, 1903. Is much improved
83	June 20, 1903	M. M.	31	S		Stricture of os internum; retroflexed uterus; chronic appendicitis	Dilatation of the cervix; curettage; appendectomy; Gilliam operation	Good	September 3. Normal conditions
84	June 22, 1913	E. B.	30	S.		Retroflexed uterus	Gilliam operation and suspension by two chromicized catgut sutures	Good	February 4, 1902. This is the case that failed
85	June 26, 1903	A. D. S.	23	S		Stricture of os internum; hyperplastic endometritis; retroflexed adherent uterus; hematoma of left ovary	Dilatation of cervix; curettage; separation of adhesions; Gilliam operation; exsection of hematoma	Good	September 8, 1903. Good
86	June 30, 1903	M. J.	32	M	3	Retroflexed adherent uterus, tubes and ovaries	Curettage; separation of adhesions; Gilliam operation	Good	

operation by separating the rectus abdominis from its anterior sheath and then repiercing the rectus muscle, the inner sheath of the rectus and the peritoneum. The ligament is thereafter drawn out as Dr. Gilliam taught us, but fastened to the posterior surface of the anterior sheath of the rectus with chromicized catgut, thus leaving the strong fascia intact.

The writer takes no special credit for this modification, and the operation is always described as a Gilliam ventral suspension in his records. He thinks, however, that there is an advantage in not piercing the anterior sheath of the rectus. The writer wants to thank the originator for a very valuable addition to our means for the correction of a retrodisplacement of the uterus.

A glance at the tables will tell what a variety of complications were met during the performance of this operation.

1002 Broad Street.

Dr. Herman E. Hayd, of Buffalo, N. Y., said the paper of Dr. Ill brought up the question of whether it was necessary to open the peritoneal cavity in cases of uncomplicated retroversion of the uterus. If there was a complicated condition, with an adherent, retroverted uterus, with diseased tubes and ovaries, diseased appendages, etc., then it might be right to open the peritoneal cavity. But he could not see the object of inviting dangers. It was not a question of mortality, but one of future complications. As the result of incision into the abdominal cavity, there might be an adhesive inflammation of the bowel to the parietal wall, and, as a result, complications requiring very radical and mortal operations. One could do an Alexander operation, could invariably find the round ligament, and succeed in putting the uterus in anteflexion in probably as large a percentage of cases as the essayist had reported successfully. If the Alexander operation was done properly, there was no need for opening the peritoneal cavity in cases of uncomplicated retroversion.

Dr. Albert Goldspohn, of Chicago, spoke of the Gilliam operation as the next best thing to the Alexander, regarding the method of shortening the round ligaments as the best of all procedures, if thoroughly done, provided all of the indications could not be met through the inguinal canal. No operation, nor any number of operations, aside from the inguinal shortening of the ligaments, even the so-called Alexander operation, had such a column of cases collected that had stood what he called the double test of pregnancy as had the Alexander. He had done the Gilliam operation on these principles only in those cases where he regarded it necessary to open the abdomen by a regular ventral incision. This was natural for one who was convinced of the superior value of inguinal shortening of the round ligaments to the extent that he was, and who was becoming more and more so convinced that he

would try to give as many of the complicated cases of retroversion the superior benefits of a permanent cure, and not simply make use of an operative procedure which promised to help patients only until the next baby. He was referring now to those complicated cases of retroversion with adhesions, with cystic or degenerated ovaries, with perhaps diseased appendages on one side, requiring extirpation. He did not apply this criticism, however, to the Gilliam operation; he was willing to wait for results.

A question with regard to the Gilliam operation was this: Would the round ligaments, after labor, undergo involution, as they were known to do without inguinal shortening, and would they continue to hold the uterus from going back into retroversion or decensus? That it would do this it was by no means certain, because in inguinal shortening the proposition was that the ligaments simply acted as a balancing power, but the weight of the uterus was not suspended upon the ligament. In round ligament suspension the weight of the uterus hung upon the ligament, and whether it underwent involution and succeeded in carrying the uterus normally, remained to be seen, and he was very anxious that the gentlemen who had labor cases after the Gilliam operation should very carefully examine them. One should not be content with the statements of women that they felt all right. A woman might feel all right, yet might have a retroversion of the uterus, or she might not feel any better, and still not have a retroversion. There should be a subjective and objective examination in every case as testimony. In the two cases of labor Dr. Ill had, the speaker would like to know in regard to the position of the uterus, and if this was ascertained by actual examination after labor or several months later?

As to the ordinary Alexander operation being sufficient to do away with the need of opening the peritoneal cavity, it was a mistake. If one made perineal wounds and they healed by primary intention, then he was certainly clean enough to do work in the peritoneal cavity. It was a safer test of an operator's cleanliness to have primary union in his hernia work than to have things go smoothly in ordinary laparotomies. He thought the cases of intestinal obstruction mentioned by Dr. Hayd were purely accidental, and would hardly occur when such simple intraperitoneal work was done upon the appendages as in these cases.

Dr. D. Tod Gilliam, of Columbus, O., said that he was receiving reports from medical men all over the country with reference to pregnancy following this operation, and with one or two exceptions the women had passed through pregnancy without any more trouble than they would experience under ordinary circumstances. He had examined quite a large number of cases after pregnancy, and had found that the uterus remained in place. He had had occasion to open the abdominal cavity once two years after doing this operation for the relief of some local trouble, and observed that the round ligaments were just as firm and large on

the uterine side as they were before the operation, and the uterus was likewise held in place.

DR. ILL, in closing, said he did not see the least objection to opening the peritoneal cavity in these cases. In a large number he had not been able to bring out the ligaments sufficiently without opening the peritoneal cavity.

Replying to the question of Dr. Goldspohn as to the condition of the uterus, he said in two of the cases delivered the uterus had remained in its proper position. He had not had a chance to examine patients during pregnancy.

ANALYSIS OF COMMON CAUSES OF DEATH FOLLOWING PELVIC AND ABDOMINAL OPERATIONS.

BY

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I HAVE selected this subject, not because I have had a high mortality, but for the reason that it is one of great interest to us all. It is the exception that I witness a death in my own work, and I am not prompted to write this paper because I am interested in post-mortem examinations; I never see them; but for the reason that I hear and read, in the great medical and lay press, of deaths which I think should not occur. My friends and acquaintances detail deaths and experiences in abdominal surgery, and ask me how they could have avoided the numerous accidents and deaths? They tell me that they think they can do better work the next time.

Just a year ago, after a heated discussion on drainage, I received a letter from a good friend who witnessed, on his way home from our last meeting, a section in a greatly emaciated patient, for an old suppuration, with extensive adhesions and bowel lesions. The operation was finished, an open treatment, and shortly after his return home he writes me as follows: "Since my visit with you I have done six successful, but desperate, cases with the open treatment. I really believe they would have all died had I not left in a great duct and packing." This is an expression from a good surgeon with long and varied experience, both in his own hands and in observation of the work of others. You often hear good men say "nothing succeeds like success," and I believe it stimulates many to do painstaking work. It is

well that operators should have over them what the boy gives the top—the lash. The dread of a death, the criticisms or comment of colleagues or hospital directors should not stay his hand in the wise choice of material and the completion of operations that should not be abandoned, nor incompleted.

A prominent young operator remarked to his assistant "that they had had too many deaths; that the Directors were talking;" and finished his operation as exploratory in character.

Mr. Tait in his first series of one thousand sections had one hundred exploratory incisions, that is, one in ten; if we could exclude so large a percentage, by an accurate diagnosis, our mortality should be *nil*. Now, that we have hospitals in nearly every small village, we have a higher mortality than we ever had in the history of the speciality of abdominal surgery. The local surgeon, in thousands of instances, without more than an object lesson or two at a distance in a post-graduate school, attempts a great variety of operations in the peritoneal cavity, and explains the disaster of his patient's death as due to the hopeless conditions and complications found within the abdominal or pelvic cavity. All of these conditions and procedures would have been perfectly simple to a well-trained man. Unfortunately the lay directors and managers of hospitals have every confidence in the newly appointed surgeon-in-chief to their hospital, and yet the only knowledge they have of his surgical work is the amputation of Pat Maloney's leg some years in the past. They place their wives and daughters in the Templars, Odd Fellows or Red Mens' private room, or that furnished by the Presbyterian or Episcopal Church, or that endowed by $300 in perpetuity in memory of Mrs. Brown; and she dies on the third day, "Because the conditions were *simple* but hopeless."

I have written several papers on post-operative complications and several upon repeated operations in incomplete abdominal procedures. This is the class of cases that perplex me more and more as I grow older and give me the only mortality I meet with nowadays. Only recently I have had a number of trying and sad experiences.

In one case, a patient came from a prominent hospital after a very simple but incomplete operation, where the operator had only partially removed one pathological ovary and tube, leaving the organs on the other side in a badly diseased state. She was sent to me some four months following this incomplete procedure, emaciated, septic and suffering acutely. I opened the abdomen

and found a strongly adherent bowel and omentum. The consolidation of everything made me strongly suspicious of what I would find below. The viscera freed, I found a huge four-foot gauze towel anterior to the uterus, the towel and pus pushing the uterus well back; the stench contaminated the hospital in a few seconds. This patient lived but a few hours, her death being the only one in the hospital in a long series, greatly distressing the operator, nurses and all concerned. Unfortunately, the spectators were numerous, many being on their way home from the Congress in Washington. Most of them went directly from my clinic to that of Dr. John Deaver where was witnessed precisely the same accident, Deaver's patient coming from a neighboring hospital for relief. I was sorry to have visitors see operations done to correct surgery and accidents which should never have occurred, careless and unjustifiable accidents.

Post-operative sequelæ and deaths from gauze are very common, I am satisfied, thrice more common than ever from sponges. For a number of years I used sponges and valued them for clean work, for packing or for a dry operation, and I believe viscera troubled me less than at the present time. I was then wholly ignorant of post-operative sepsis in my own work, and in that of my pupils. Had I now the time to take care of my sponges. I would go back to them, as highly as I value gauze. To my mind, it is one of the most valuable materials in our surgery. We have given the speciality of nursing more attention as we advance in our work, and I am satisfied we all feel abundantly rewarded by a low mortality for the interest we have taken in that speciality. My nurses keep my mortality down. It is a speciality which we should pay even more attention to. Many nurses are receiving better educations than we did, and are capable of great good as well as some evil. If immoral, they are dangerous; as lobbyists they are dangerous. Chief nurses are wrecking some good hospitals by running the institution in the interest of one or two of the staff, to the disadvantage of the others. Five and twenty years ago they occupied a small space in the resident portion of the hospital, the chief nurse dining with the nurses, but now she commands the privileges of the steward at the residents' table, private apartments and a nurse's home very much finer than the original hospital.

A number of good operators attribute their low mortality wholly to gloves. One very scientific teacher asked me before putting on his gloves, if I did not think twelve to fifteen per cent. was

a low mortality, taking cases as they come? I replied, "no, too high." After adopting the gloves, he reduced his death rate to about *nil*; but his precautions were all redoubled; for example, after operating on a septic case, other operations were postponed for thirty-six to forty-eight hours. Again, in a study of the complications and pathology, in his reported cases, I failed to find one which could have died from good surgery. Let me illustrate how difficult it is for the general practitioner to make choice of an easy operation. Recently a very good diagnostician asked me to incise a suppurating kidney, as he felt it was one of the most difficult and dangerous operations in surgery. I did it for him, and it was simple play when compared with much of the work I am requested to do. After the operation he desired me to see a patient with advanced pelvic suppuration on both sides, puriform tubes and ovaries, with extensive adhesions. This case, he thought, was an easy one and desired to perform the section. He operated and she lived only sixteen hours; my patient made a speedy recovery.

I operate in a great many small hospitals throughout the country, and I strongly advise my pupils and friends not to undertake complicated and unpromising operations, but to allow the older and more prominent operators do them. I could clip from the daily papers the accounts of deaths, both early and remote, which should never have occurred. While glancing over this morning's paper, I saw the notice of a death—a young man, twenty-two years old, who "never fully recovered from the effects of an operation, in May last, for appendicitis, and for several days his condition was critical." Re-operation by one familiar with such procedures would probably have saved him; his appendix or possibly a sponge remained in his peritoneal cavity. The adherent omentum and bowel were never freed, the snarls forming an obstruction from the effects of which he could have died at any time, or a puddle of pus in his pelvis or posterior to the cecum remained undrained. For a long while we discussed the propriety of operative intervention in appendicitis; now, we are discussing how to do it well without a death, and we are all shocked at the numerous incomplete methods of operating which are responsible for a high death rate all over the country. Some operators tell us that their acute septic peritoneal cases all die; in these patients his operation, his toilet and his drainage are all at fault.

Recently a brilliant young surgeon assisted me in an operation for acute gangrenous and perforated appendicitis, with general

septic peritonitis, the peritoneum charged and bathed in septic fluid. This case got a wash toilet and a coffer-dam drain; she never had a bad symptom. He remarked that about all these cases died in his hands. I see that in a splendidly appointed hospital, with which he is connected, the mortality is high in appendicitis operations. My reasons for alluding so fully to this subject are that the disease is so common, and the death rate so high.

Some years ago I alluded in papers and discussions, to appendicitis simulating typhoid fever with perforation, and stated that a good number of cases of appendicitis were being treated for typhoid. Some good clinicians and diagnosticians ridiculed the idea, and I am now almost sorry I ever presented the subject, as it seems that surgeons are going to the other extreme. In mild and simple typhoid, they are opening the abdomen and removing the appendix with unfortunate sequelæ and a startling mortality. This reference is made purely to demonstrate a common error for a high death rate in abdominal surgery.

Vaginal incisions and perforations favor a high mortality in later operations made for the clean removal of the remaining pelvic pathology. Purifom tubes and ovaries, suppurating tubes and ectopic pregnancy, seldom allow sufficient improvement in vital force and stamina to bear well the complete operation (suprapubic) after they have been incised through the vagina. Primarily, they would all have been easy by complete methods without mortality. The choice of method and material are of paramount importance to good work, and the suprapubic procedures, when complete and done early, drainage used when necessary, should like the infrapubic, when done by one of the finished operators like Jacobs, Segond or Pryor, give a mortality close to *nil*. I do a large number of vaginal hysterectomies for malignancy of the uterus, cervix or fundus and for small fibroids without a death, and it is one of the easiest operations I am asked to do. In suppurative forms of tubal and ovarian disease I do not consider the vaginal route complete surgery; the adherent omental and bowel adhesions and the diseased appendix are wholly neglected. The anesthesia I consider of the first importance and have little choice between ether and chloroform. In the South, with a good anesthetist, I like to employ chloroform; while at home, anesthetizers know little about chloroform, but use ether well. Recently in Winchester, Va., I had two clinics, five or six cases in each, for appendicitis, hernia, cystoma, hysterectomies and gall-stones; these patients were produced rapidly

by a young man giving chloroform with great skill. The operations were done rather hurriedly and the anesthesias were the best I have ever known in my operative work. They had little disturbance of any kind after these serious operations and all recovered. I never saw them again after they left the table. I allude to this group of operations to demonstrate, *first,* that the anesthesia is very important, *second,* that rapid operating is important and, *third,* nursing and after care away from home, by physicians in other institutions other than our own, and in house to house operations, can be well done without mortality. We are not convinced that there are good and bad anesthetists until we get hold of a new or careless resident who fails to get the patient under ether until after the operation is over. He then collects himself sufficiently to kill your patient, if possible, while you are putting on the dressing. Just here the patient, if he does not succumb, is left in a bad condition requiring refined nursing, a talent not found in all hospitals.

The after and abiding bedside care is not to be found in many institutions; if you will visit your patient just before you leave the hospital you will often fail to find a nurse in the patient's room. The private sanitarium gave us the first good nurses and training schools and it is from these that we get the more successful and competent nurses for good work in surgery. Wherever such a school exists, there is a premium given the nurses, such as presents of a hundred dollars, a gold watch, or a trip to Europe.

I have referred very briefly to materials; animal ligatures give us at the present time about all the common accidents and deaths from hemorrhage, tetanus and sepsis. Occasionally we hear of a report of acute or chronic sepsis in a case or a series of cases, in which animal ligatures were used, whereas it is simply impossible to infect a patient with a boiled or steamed pure, fine silk. Good operators give animal ligatures a re-trial and then go back to pure silk. *The medical supply carpet bagger* is a dangerous man, he always has Murphy, Morris or Deaver silk, needle or instrument O.K.-ed by Murphy, Morris or Deaver, and the Maine or Texas doctor buys it at once. Commercial articles give the beginner, the young operator throughout the forty-seven states, a mortality *he should not have.* The preparation of materials by any of *you* in your *hospital* and used by clean *well-schooled hands* is safe and rarely gives a *mortality, but pure silk and silkworm gut are the safest and strongest of all materials.* Gauze is a

drainage dressing and takes the best care of the wound of all materials ever tried. Cleanliness and everlasting vigilance in cleanliness from the very inception of an operation, in patient, nurse, operator and environs, distances infection. I believe in this city, some doctor recently, in criticising the filthy physician, said: "The clothing and even the man should be consigned to the fire." This story and the dirty hands and habits of some surgeons reminds me of the criticism of Charles Lamb of his adversary in whist, "Egad man, what a hand you'ld hold if dirt were trumps."

241 North 18th Street.

Dr. Herman E. Hayd, of Buffalo, N. Y., said he had written the letter to Dr. Price in reference to the open treatment. He had previously written a paper upon the necessity of evacuating pus when it could be easily reached, and then later, say in the course of a week or two or three weeks, do such a radical operation as might be necessary. He would still adhere to that position. If there was great difficulty in finding and evacuating the pus; if to get at it there was liability of injuring the bowel or bladder, such a procedure was not indicated. The cases of pelvic abscess where the mass extended to the umbilicus, and one imagined adhesions existing between the bowel, viscera and omentum, when operated on, invariably died. The advantage of the open treatment was in taking care of the later infections that occurred on the third, fourth, fifth or sixth day, from injuries to the bowel and other viscera. Dr. Price placed a coffer-dam so well that it was only a mechanical engineer, such as he was, who could have thought of building up the foundation as he had built it up in those cases. The speaker did not use the method which Dr. Price employed, where he packed one above the other, but simply the Mikulicz nest, and pressed into that nest a bandage, and as the viscera were lifted up the gauze would drain.

What made Dr. Price's paper valuable was that he accentuated the importance of the bad results that came from incomplete surgical work.

As to the use of rubber gloves. Some men could sterilize their hands, others could not. Wyeth, Morris, and others had made experiments along this line. Morris in particular had written on the objections to the use of rubber gloves. No doubt one could do better work without than with gloves; but some surgeons were more liable to convey infection than others. Some surgeons could not clean their hands thoroughly with all the means at command. This had been demonstrated experimentally.

So far as the animal ligature was concerned, he had used it for many years. When he prepared his own ligatures he hardly ever or never had a case of hemorrhage. The only cases in which he had ever used silk were those in which he was dealing with the stump of the appendix, and in operations on the stomach, other-

wise he employed the method of the essayist in preparing chromicized and ordinary catgut.

DR. ALBERT GOLDSPOHN, of Chicago, said that when the essayist spoke of imperfect surgical work in a general way it was most commendable; but when he included in this the drainage of abscesses which opened into the vagina, that any man almost would open, just as he would open a phlegmonous abscess, then he was mistaken. These cases certainly occurred to every operator of experience, and he thought Dr. Price would not operate on the profoundly septic, neglected, rotten cases that all operators sometimes got—cases that had a high temperature for many weeks, and a pulse of 150, sometimes not perceptible. Such patients, if subjected to a radical and complete operation, would invariably die. One could drain in these cases with little or no anesthesia; improve the condition of the patients, and later they became able to stand a thorough procedure.

As to sterilization of the hands and the use of rubber gloves, there was a large individual difference in men's hands. Some men were obliged to use rubber gloves, others were not. The surgeon who was careful with his finger-nails and took every precaution would not need this artificial protection in many instances. But every operator should wear gloves in doing dirty work. He could not keep his hands clean otherwise. This matter had been definitely settled by a long series of scientific and bacteriological investigations.

DR. ROBERT T. MORRIS, of New York, N. Y., spoke of the use of rubber gloves, saying that it was a question that needed elaborate analysis. It was not to be dismissed in a few words by anyone. At the Hospital for Ruptured and Crippled, New York, the statistics of hernia operations showed that suppuration had been reduced from 4½ per cent. to 1½ per cent. under the use of rubber gloves. The record was carefully made, and it could not be denied. But this was in a special class of cases—hernia cases. Everything was in sight, and the surgeon could operate on most of these with boxing gloves. When one entered the peritoneal cavity and began to separate adhesions, he had another question to deal with. The two classes of cases should be separated as one would separate the sheep from the goats, and if attempts were made to separate peritoneal adhesions with rubber gloves the operator would tear things that he ought not to tear. He would leave wounds open so that more bacteria would gain access to the parts than were carried in on his hands. It was a mechanical impossibility for any man to do even fairly good work in abdominal surgery in cases of adhesions with rubber gloves on. Infection occurred not from the presence of one bacterium or two, but it was a question of dose. Bacteria carried in on the hands of the surgeon were in different degrees of proliferation. A man whose hands were moist habitually carried actively proliferating colonies of bacteria in the epithelium. The man whose hands were habitually dry carried bacteria always in the epithe-

lium of his hands; but the bacteria were not proliferating so rapidly. The bacteria from the hands of a dry-skinned man were not as dangerous as those of a moist-fingered hand.

A man with strong cell resistance killed or held in check bacteria in the epithelium of his fingers. A man with lesser normal cell resistance allowed bacteria to proliferate with a greater degree of rapidity in the epithelium of his fingers. Therefore, the surgeon with strong, natural cell resistance, holding in check bacteria in his fingers so well that they were not in an active stage of proliferation, was not going to infect a patient who would be infected by the fingers of another man. The problem included the individual characteristics of the surgeon, his normal cell resistance, habitual moisture or dryness of the hands, etc.

Dr. James F. Baldwin, of Columbus, Ohio, said there was one part of the paper which had not been touched upon, namely, that which referred to the large number of hospitals being organized in villages, and the frightful mortality that attended the operations which were performed in these hospitals. The trouble was in having staffs for these hospitals, and some man, as the essayist had said, who had amputated a man's leg a year or two before, perhaps, was the chief surgeon of the hospital. He was incompetent to do all of the surgery that was required of him, consequently the results were disastrous. He did not know that anything could be done unless the people were educated so as not to appoint staffs for these hospitals. There were one or two hospitals in Ohio in which any surgeon could operate. There was no staff. He visited Jacksonville, Ohio, a few weeks ago. They had two successful hospitals there, and they had no end of trouble when they had staffs. Now they had none. The hospitals were well supported. Every tub should stand on its own bottom. Any skilful surgeon could operate on anything that came along, and he had no doubt the mortality in these institutions was much lower than it used to be.

In regard to the use of rubber gloves, the great value consisted in their use in closing the abdominal incision, particularly where it was closed with animal sutures.

Dr. Charles L. Bonifield, of Cincinnati, Ohio, said that however one might admire Dr. Price and his results, his productions should be read with a little doubt as to whether he was absolutely accurate. While it might be all right for Dr. Price in most of his cases of suppuration in the female pelvis to open the abdomen and do a radical operation, it was certainly not the wisest procedure for the average abdominal surgeon to undertake. It could not be denied that the average man would secure better results by draining his cases primarily that were easily drained, but not those where by so doing there was great liability to tear the bladder or bowel, but where a pus tube was grafted behind the uterus, one ought to be able to open an abscess there just as readily as he would open a boil. These cases should be drained and later operated on in a radical manner.

As to catgut ligatures, those who had been using catgut for a number of years had so little trouble with it that they would be loth to return to silk, for if silk was introduced in a perfectly aseptic way, trouble might result from it.

Relative to the use of rubber gloves, any man could operate with more dexterity without them than with them. Nearly all germs that gained access to a wound were carried there by the surgeon's hands, or by the materials used in the operation. One of the great advantages of rubber gloves was the readiness with which they could be cleaned. In separating adhesions and opening abscesses the hand became contaminated, and it took a good deal of time to sterilize it again. It was impossible to do it in the progress of the operation. The rubber glove was smooth, and could be cleansed almost immediately. A German, whose name the speaker could not recall, conducted a series of experiments last year along this line, and stated that gloves could be rendered sterile by washing them with soap and water.

Dr. John Young Brown, of St. Louis, Mo., said that at the last meeting of the Mississippi Valley Medical Association he reported 19 cases in which vaginal section for drainage was resorted to for pus. Five of these were subsequently operated upon. Abdominal section was done in four of them. One of the patients was taken ill five months after vaginal section, while at Atlantic City, and was subsequently operated upon by Dr. Joseph Price, who did an abdominal section. The speaker was reasonably confident that none of these patients would ever have come to abdominal section if they had not been drained through the vagina primarily. The cases operated upon were all desperately ill, and while he had seen Dr. Price operate on these cases through the abdomen, he had not had the boldness to do it himself. In the case (Price) subsequently operated upon, the appendix was bound down with adhesions from sigmoid to cecum. He received a letter from Dr. Price after this operation calling him to task for having resorted to vaginal section primarily. He believed that had he not operated through the vagina Dr. Price would not have operated on the woman through the abdomen subsequently.

He agreed with Dr. Morris that in separating adhesions it was impossible to do so as well with the gloves on as it was without them. He had tried time and again to work in the abdomen with gloves, but confessed that he had not been able to do as good work with them as without them. In his own work, however, the number of cases of stitch-hole abscesses, infection of wounds, etc., had been largely reduced by the use of the gloves in appropriate cases.

Dr. Edwin Ricketts, of Cincinnati, Ohio, referred to ligatures, saying that notwithstanding the remarks of Dr. Hayd and others, the tendency of operators to-day was to use pure silk. No less an authority than Hans Kehr used silk from beginning to end in closing his incisions in cases of cholecystectomy, etc.

Dr. J. Henry Carstens, of Detroit, Mich., could not agree

with Dr. Price in reference to drainage. He said that if he had a pus tube to deal with, and he thought it required drainage, he would make a small opening in the cul-de-sac, and insert a rubber tube from above. Nature would drain through the vagina without any trouble or interference. If by some combination of circumstances there was agglutination of the intestines over the raw surface that was infected, perhaps up above the rubber tube an inch or two, just around a loop of intestine, there was a little septic condition, and a secondary abscess formed there, after a little while the abscess would move in the direction of least resistance with the adhesions that had been formed, and break into the cavity where the rubber tube was, escape, and the patient would get well.

As to rubber gloves, some men could not keep their hands clean. It was not their own fault, as they did their best to do so. But there was the personality that Dr. Morris talked about. There were men who treated everything from septic appendicitis to cases that were equally as bad. Their hands were dirty; they would always remain dirty. They could not clean them. To practice abdominal surgery one had to abstain from certain things. His hands must be clean. An abdominal surgeon could not afford to go and see cases of erysipelas, scarlet fever, diphtheria, etc. It was the man who saw such cases and operated who got the large mortality that had been referred to.

The only place to use silk was in intestinal surgery, where catgut would not hold long enough to get permanent adhesions. For everything else there was nothing better than plain, dry, sterilized catgut. He did not think there was any better suture material for closing the abdominal incision than catgut. There were fewer hernias, fewer stitch-hole abscesses following its use, no matter what Dr. Price or any other man might say to the contrary. He had used it in twelve hundred cases with good results.

Dr. H. W. LONGYEAR, of Detroit, Mich., said there was one point in connection with the use of rubber gloves that had not been referred to, and it was this: It was not the hands of the operator, but those of the assistants. The hands of the assistants were more important than those of the operator, so far as cleanliness and sterilization were concerned. It was known what the hands of the surgeon contained, but the surgeon did not know so much about the hands of assistants who worked in a general hospital, where he had to take assistants as they came in rotation.

There was one thing to be said in commendation of the use of rubber gloves, namely, if the surgeon did not use them himself he should insist upon his assistants using them. Since using rubber gloves, he had had far better results, especially in his plastic work.

Dr. RUFUS B. HALL, of Cincinnati, Ohio, for several years had used gauze in cases where drainage was indicated, and believed he had saved patients whom he would have lost without the use of it. He did not use gauze so much for drainage as to

protect the cavity that was left where one had to peel off a pus
tube.

DR. PRICE, in closing the discussion, said that some years ago
the surgical work at the Hospital for Ruptured and Crippled,
New York, was done in the afternoon. Many of the operations
were performed by resident physicians, but things had changed.
At the present time operations were done early in the morning.
The operative work was done after baths and douches and a small
breakfast. In their mortality statistics the fact was lost sight
of that they did their work earlier now than formerly, before
contamination took place, and the reduction in mortality was not
wholly due to the use of rubber gloves, because the mortality
rate was lower the world over.

At the Samaritan Hospital years ago Bantock operated in the
mornings, with a mortality of only one or two per cent., while
Knowsley, Thornton and others operated on patients at three
p. m., with a mortality of 9.11 per cent. Martin and other Ger-
man operators took a bath, a cup of coffee, and a roll, and operated
in the morning, with almost a *nil* mortality. All the afternoon op-
erators did their surgical work with a high mortality. The late
Mr. Tait operated at an early hour, with a mortality of 3.5, and
at 2 p. m. with a mortality of 8.5. He said if the members wished
to lower their mortality, they should operate in the morning, while
they were clean and their mental condition was the best, and
before they prolonged the anxiety of their patients.

REPORT OF A FOURTH CONSECUTIVE SUCCESSFUL OPER-
ATION FOR ACUTE PERFORATED GASTRIC ULCER,
WITH GENERAL INFECTION OF THE PERI-
TONEAL CAVITY.

BY

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IN September of 1900, at the Louisville meeting of this Associa-
tion, I read a paper on "Notes of Four Cases of Perforated Gas-
tric Ulcer with Remarks;" in it I reported my two first operations
for perforated gastric ulcer, and a year ago in Washington, at
our annual meeting, my third was put on record.

For the purpose of clearness in regard to some points. I will
give brief synopses of them in the order in which they occurred
before touching the subject of this paper.

CASE I.—Miss E. H., æt 15 years; anemic; previous history of
gastric ulcer of six months duration; had vomited blood. Per-

foration occurred half an hour after a hearty meal and operation thirty-two hours afterward. Pulse rapid; temperature 102°, and abdomen rigid; general peritonitis. Large abdominal incision; watery pus in all parts of abdomen. Small perforation on anterior wall an inch above greater curvature near splenic attachment. Closed with silk. After thorough inspection and flushing of all parts of abdomen and pelvis, the incision was closed without drainage. Now, more than five years since operation, patient is in excellent health, and has never had a symptom of her former trouble.

Case II.—T. McC., male; æt 20; long history of gastric distress; never vomited blood; dilatation of stomach and pyloric stenosis.

Slight leakage occurred some days before complete rupture. Operation six hours after perforation; large abdominal incision; gas free in abdominal cavity, also pus and many pieces of partially organized lymph. General peritonitis and patches of peritoneal coat of intestines denuded. Distended colon had to be collapsed by a cut before the necessary evisceration was possible; abscess cavity found bounded by adhesion between colon, coils of small intestines and omentum. Large, round perforation in anterior wall at pylorus; great thickening of parts; ulcer excised; gastroenterostomy. Sight inspection and flushing of all abdomen and pelvis; rubber drains for both flanks and pelvis. Recovered and had excellent health for more than two and a half years, then had perforation of jejunum by peptic ulcer. An operation again saved his life, and he is now in good health and doing farm work.

Case III.—Miss K. F., æt 21; strong and robust; no history of gastric ulcer; never vomited blood.

The perforation took place six hours after a hearty meal; operation nine hours after it occurred. Large incision; distended colon incised and collapsed; evisceration. Large, irregular perforation on posterior wall close to lesser curvature; pieces of pickled cucumber and of other kinds of food found in lesser peritoneal cavity; ulcer closed; general sight inspection and flushing; flanks and pelvis drained. Recovered.

(For details of the cases, see the Transactions of the A. A. O. & G. for 1900 and 1902.)

The following is a report of my fourth case:

Miss G. M., æt 19 years; height 5 ft. 2 inches; weight 100 pounds; a small-framed, anemic young woman; family history good.

Previous History.—Except the usual diseases of childhood until her fifteenth year, she had excellent health. Shortly after the establishment of menstruation she became anemic, listless and nervous. In time the menstrual periods became irregular, and the amount of discharge less than normal, and wanting in color. The usual iron tonics were prescribed with indifferent results. Finding little beneficial results from medicine, her people sent her to the Northwest in June, 1902, where she remained until the following January. For a time, after reaching the prairie country, she improved greatly in every respect and her weight increased more than ten pounds. By August she was as well as she had ever been and could take hours of outside exercise without fatigue. Her health remained good until the middle of November, then, for the first time in her life, she had gastric distress after eating which gradually increased in severity. The pain came on one hour after her meals and lasted from half an hour to several hours. Sweet things caused more irritation than other kinds of food. She never vomited, but when the attacks of pain were severe, she often felt as if she were about to do so. The bowels were costive; no tarry stools were passed. Her appetite was good but the pain caused her to be abstemious. The pain radiated to left side and, when severe, to left shoulder.

By Christmas she had lost in weight all that she had gained in the early months of her visit. On the 20th of January she returned home. Two days later, during the night she had a sudden and severe attack of pain in the epigastrium which caused marked signs of shock, but which passed off before her medical attendant arrived.

For supper on the 26th of the month, she was persuaded to take a hearty meal of roast beef, fried potatoes and cake, and at 10 p. m., after she had retired for the night, was given a cup of cocoa and a few biscuits. She slept soundly till 3 o'clock next morning, when she awoke with unendurable pain in epigastrium, which radiated into left side of thorax and left shoulder. This quickly led to a state of collapse in which the surface of body became cold and clammy. Her mother gave her a cupful of undiluted whiskey without any apparent effect. I saw her an hour and a half after the attack and found her temperature subnormal, pulse 90, abdominal wall set and rigid, respiration thoracic and superficial. The site of most intense pain was now in the left side of abdomen near anterior superior spine of ilium, but the pain in epigastrium, left side of thorax, and especially in left

shoulder, was still very pronounced; no vomiting. The character of the attack and the history of the case made the diagnosis easy. The diagnosis having been made, in order to mitigate her suffering, a hypodermic injection containing half a grain of morphia was given and repeated in less than half an hour. As soon as possible, she was taken to the Guelph General Hospital and prepared for operation; this included thorough lavage of the stomach. At 8 a. m., the preparations were completed, and by this time the patient's temperature had risen to $99\frac{3}{4}°$ F., and pulse to 120.

The operation was carried out in accordance with the method that I advocate. The peritoneum near perforation was covered with inflammatory exudate, and the abdominal cavity contained a large quantity of turbid fluid in which floated particles of lymph and other palpable matter.

The perforation was on the anterior surface of the cardiac end of stomach. It was the ordinary, round, glistening, peptic ulcer with the peritoneal aperture partially covered with shreds of lymph. Nature had evidently made an attempt to prevent leakage by adhering the part to the structures lying immediately in front of it. Its calibre was of sufficient size to admit an ordinary lead pencil. It was closed with three rows of fine silk sutures. After thorough sight inspection and flushing of all parts of the abdomen and pelvis, rubber drains were used through stabs in flanks, and the abdominal incision closed with through and through silkworm gut sutures. Owing to the absence of marked tympanites and the situation of the perforation, the operation was much less difficult to perform than any of my other cases. An hour after the operation, the pulse fell to 100 and the temperature to 99°, and in less than twenty-four hours both were practically normal. Nothing but an occasional spoonful of hot water was given by mouth until the end of the third day, then albumin water, broth, ice cream and similar nourishment was allowed. She recovered without a single untoward symptom and has remained well ever since.

Acute gastric ulcer perforation, as understood by me, refers to those instances in which nature fails to prevent the escape of the gas, liquid, or other contents of stomach by adhesion of the part to adjacent structures. It has fallen to my lot to have had personal experience with six of these cases. Two of them occurred in my practice before the days of operative treatment. In one of these a post-mortem examination revealed a large, round ulcer in

posterior wall and milk and oatmeal porridge free in both of the peritoneal pouches.

This patient died from shock shortly after the perforation took place, thus proving how quickly the escaped material may pass through the foramen of Winslow when the rupture is in the posterior wall.

No one will deny the vital importance of early diagnosis and prompt action on the part of the surgeon in regard to the successful management of unguarded perforated gastric ulcer.

The diagnosis should be comparatively easy when the patient is a young, anemic girl whose previous clinical history indicates, however feebly, the presence of a gastric ulcer, nor should it be difficult in the majority of the other cases. In most instances there is a history of after-meal gastric distress and often other symptoms indicating the existence of the ulcer. Whether such history is obtainable or not, the sudden onset of intense pain in the epigastric region, the pronounced shock, the rigidity of the abdominal wall and the thoracic character of the respiratory movements aid us in arriving at a correct conclusion; but if in addition to these the attendant finds that the initial pain radiates and the position of the greatest suffering changes in the manner to be described presently, a diagnosis may be made without delay.

In the early stage, the pulse and temperature are not reliable guides, for the former may not be accelerated, and the latter only slightly subnormal.

There may be rare instances of rupture of the gall-bladder or perforation of the duodenum in which the symptoms closely simulate those of gastric perforation, but here fortunately the indication for prompt surgical treatment is practically the same as that for the condition under discussion.

The administration of morphia in the early stage by masking the symptoms often prevents timely diagnosis and prompt surgical treatment. With rare exceptions it is the general practitioner who is first called to attend the case. He finds probably little, if any, disturbance of the temperature and pulse, and, having sympathy for the intense suffering of the patient, gives a hypodermic injection of morphia. In a short time, owing to the marvelous effect that morphia has in this stage of the trouble, the pain is completely relieved, the rigid abdominal walls become relaxed, and the character of the respiratory movements normal; but in less than twenty-four hours all is changed again, and on the arrival of the consultant the patient is beyond the power of human skill. Until general

practitioners become more familiar with the true import of the
initial symptoms, successful operations for acute perforated gas-
tric ulcer will not be common.

Do the symptoms indicate the situation of the ulcer? Yes, at
least in a manner sufficiently definite to give the surgeon a practi-
cal knowledge of the site, especially when a complete history of
the case previous to the rupture is obtainable; but in the rare in-
stances, in which no previous history of gastric ulcer exists, we
must be guided wholly by the character of the initial symptoms
that follow acute perforation.

Let us take, first, the indicating symptoms which occur before
perforation. When one of these ulcers approaches the peritoneal
coat of the stomach, an area of local peritonitis is produced in
that portion of it. This area, though small, is very sensitive to
pressure or any form of irritation. Hence the posture of the
patient in bed is of some import; for instance, with the ulcer in
the anterior wall, he is more comfortable when lying on his back;
when it is near pylorus, he avoids the right side and is easier
when lying on the left, and so on, according to the position of the
ulcer. The posture assumed by the patient is that which causes
the least pressure on the part and which keeps the contents of
stomach away from the ulcer.

Again, when an ulcer in this stage is situated in the anterior
wall, and in that part of it which can be affected by pressure
from without, slight point pressure directly over it causes severe
pain. By this means the exact site of the ulcer can occasionally
be determined. When the trouble is on the posterior wall, it
requires deep pressure to produce the same effect.

Whether caused by irritation of food, pressure or otherwise,
the pain, especially when intense, radiates in certain directions,
according to the part of stomach affected. When the ulcer is at
or within a few inches of the pylorus and on the anterior wall, the
pain radiates to the right or to the right and downward, but in
any other portion of this wall to the left side and often into left
shoulder. When on the posterior wall, it radiates into that por-
tion of back immediately behind it and to right or left, according
to whether it is to right or left of the median line of body, and
frequently upward into intercapsular space.

Symptoms that indicate the situation after rupture: Immedi-
ately after perforation occurs they are practically the same as those
that have just been described, only of much greater intensity.
They are at times difficult to obtain, owing to the condition of the

patient; besides, these important initial symptoms are soon covered by the terrible pain produced by the escaped contents of stomach gravitating downward in the abdomen. The rapidity of this change depends upon the size and situation of the perforation and the amount of food in the stomach. Other things being equal, it takes place more rapidly in perforation of the anterior wall. The situation of the acme of pain follows the downward course of the material. In perforation of anterior wall to left of median line, the material, and consequently the pain, follows the course of the descending colon. In acute perforations in all the other situations, the course taken is generally along the ascending colon toward the pelvis.

When the previous history and initial symptoms are not obtainable, if the patient is first seen when the most intense pain is in the right iliac region, a mistake in diagnosis may easily be made. A few years ago an article appeared in either the *Annals of Surgery*, or the *Medical Record*, which contained five or six good illustrations of this mistake, all verified after operation by post-mortem examination.

The special symptoms to which your attention has been called are those which have been observed by personal experience. They are only applicable to the acute perforating ulcer, or those cases in which there are no adhesions to prevent general infection of the abdominal cavity.

It may be said in regard to the matter that new ground is being broken. Further observation in this particular branch of the subject on the part of others, who have greater opportunities, will probably extend and improve our knowledge of the symptomatology of the acute perforating gastric ulcer.

There is a very marked diversity of opinion among surgeons in regard to the proper method of dealing with cases of general septic infection of the peritoneal cavity. Some advise an abdominal incision in size merely sufficient to deal with the original trauma and leave the peritoneum to take care of all the rest; while others add to this some form of drainage. The greater number of our authorities speak despairingly of the large incision and condemn evisceration, temporary enterotomy, and like steps which necessitate more or less exposure of the abdominal contents. The question then arises : Which is the lesser of the two evils, want of thorough peritoneal toilet, or exposure of intestines with proper precautions to keep them warm and moist? Time will decide the problem, and in regard to general septic infection of the peritoneal

cavity from perforation of the stomach or other portion of the upper intestinal canal, I have no hesitation in stating that in my opinion the decision will be in favor of the large abdominal incision and such steps as will permit thorough toilet of the peritoneal cavity. Is there any possible hope for our patient if we close the abdomen and leave behind palpable particles of partially digested vegetable and animal food?

I hold the same belief in regard to the method of treatment of all cases of septic peritonitis of whatever origin in which tympany is a pronounced symptom.

In general infection from perforation of a gastric ulcer in which distention of the abdomen is a prominent symptom, the stomach is collapsed and crowded up under the ribs and diaphragm in such a manner that it is utterly impossible for any surgeon to suture successfully the perforation without resorting to temporary enterotomy and evisceration; and if it were possible to do so, how would he remove the highly irritating contents of the stomach which have escaped or rather have been forced from the organ among the coils of intestines or into lesser peritoneal pouch?

Here a large incision collapsing the distended coils of intestines, when necessary, by one or more temporary enterotomies and evisceration, renders the work of closing the perforation and the thorough toilet of the whole peritoneal cavity easy of accomplishment in a shorter time, and with less damage to the delicate structures, than is possible by any other known method.

It should be the sole duty of one of the assistants to keep the exposed bowels covered with warm, moist, sterile gauze and constantly irrigated with water at a temperature of 102° F. A separate irrigating apparatus with a large and somewhat forcible flow is required, in order to flush quickly the numerous nooks and pouches of the abdominal cavity.

When the perforation is large, it is my practice to use three soft rubber drains, one for each flank, well to the back through a stab in the depression below the kidney, and the third for drainage of the pelvis through a puncture of the lower abdomen to left or right of median line, and as far as possible from the main incision.

The surgery of the stomach has a large future for useful work—much larger and important than is commonly supposed. The branch of it, to which your attention has been directed in this paper, is of much less importance than many of the others.

Take, for instance, the numerous and often serious complications to which the chronic gastric ulcer gives rise. There are thousands of these patients, great sufferers too, who belong to this class, and who are still ineffectually treated for dyspepsia by medical remedies when surgery offers them a very safe, quick and complete relief.

235 WOOLWICH STREET.

DR. C. H. MAYO, of Rochester, Minn. (by invitation), said if he understood the essayist correctly, in no case was gastroenterostomy performed; that he succeeded in most of the cases in excising the gastric ulcer. The diagnosis could be made before the time of operation if the patients were in the hands of most of the ordinary practitioners. But few of them, as the author stated, had had their own symptoms diagnosed; they had seen no physician, yet all of a sudden symptoms of perforation manifested themselves. But these cases were rare. He recalled a case of that nature. He had seen several cases of the type mentioned by the essayist. His experience had been that there was about an even number of cases of perforation in the pyloric region of the stomach, and also in the first portion of the duodenum; that the results and symptoms were about the same for either position; that the character of the ulcer was about the same. In stomach perforations, as a rule, the chronic irritation had been of such a nature that it was almost impossible to close the perforations. These cases could be drained, but as far as doubling the wall was concerned, it was impossible, because of its thickness and the brittle character of the tissue. In the duodenum this was not so marked, because there was a difference in the anatomical structure. The question naturally arose whether the cure of a gastric ulcer had best be undertaken by gastroenterostomy, where there was no perforation; at the same time, the ulcer could be excised if it was deemed advisable at the time of the operation. The bulk of ulcers occurred in the pyloric region, and excision there would result in many instances in closure of the pylorus. The inflammatory area must necessarily in the great majority of cases produce obstruction of the pylorus, so that while one would temporarily cure the case by plugging the opening with omentum, by suture, by excision, he would not relieve the patient of future trouble.

As to the method of making gastroenterostomy, undoubtedly posterior gastroenterostomy, when it was properly performed, was much better as to permanency of result and was more successful than the anterior. The anterior operation at times might have to be followed by an enterostomy. While posterior gastroenterostomy involved more risk, and gave better results, the anterior operation was simpler; it gave a very low mortality, and it could be performed with the Murphy button or with the McGraw elastic ligature with an equal degree of success. The Finney operation was usually out of the question, because it involved the diseased

area, and occasionally there would be leakage at the suture line after a week, with apparently successful recovery.

As to drainage, most operators had settled this question for themselves. There were no fixed facts about it.

Dr. John B. Murphy, of Chicago, congratulated the essayist on his result: The time to operate on these cases was before the peritoneum had been irreparably injured. This might not be the first day. Many times the stomach was not full at the time perforation occurred. Furthermore, the stomach contents was less septic than that of any portion of the alimentary canal. The irritation from it was less than from any other portion of the alimentary canal, excepting the duodenum. Therefore, the element of time in a case of perforation of the stomach might be longer than when a man had a perforation from typhoid fever.

Every man who was familiar with operating for perforating gastric ulcer knew that the abdomen could be filled with fluid and still it could be removed, the gastric ulcer excised, the abdomen drained, and the patient recover. With the same period of time elapsing after a typhoid perforation, the rule was that the patient invariably died because of the greater degree of sepsis and of injury to the peritoneum in those cases. Therefore, he congratulated the essayist more on his timely action than on his technique.

Dr. Howitt, in closing the discussion, said that if he understood the remarks of Dr. Mayo correctly, he stated that gastroenterostomy should always be performed in a case of perforating gastric ulcer. If this was correct, he would differ materially from his (Mayo) method of treatment. In acute perforating gastric ulcer hyperacidity of gastric juice was present. If the ulcer was situated remote from the pyloric orifice, of what benefit would be a gastroenterostomy? In the speaker's second case there was complete obstruction of the pyloric end in two and a half years afterwards. What was the result? An ulcer of the jejunum. He could not understand why Dr. Mayo advocated gastroenterostomy in acute perforating gastric ulcer.

As to the performance of gastroenterostomy for malignant troubles of the stomach, this operation was undoubtedly very beneficial, but in acute gastric ulcer or even in cases of chronic gastric ulcer, gastroenterostomy should be avoided, if it was desired to escape future trouble.

Relative to whether the surgeon should do anterior or posterior gastroenterostomy, this matter should be left entirely to him. He had done gastroenterostomy, with the exception possibly of Dr. Mayo, as frequently as any other man in the Northern part of this Continent, and, with a few exceptions, he had performed the anterior operation. He believed that when the patient was afterwards put in the erect posture, the anterior operation was the better one, and if it was done in accordance with the method he had frequently advocated, there would be no trouble or unfavorable results such as frequently followed anterior gastroenterostomy when it was performed according to the method described

in text-books. If the patient was weak and there was very little hope that he would again assume the erect posture, the speaker would advise posterior gastroenterostomy.

He agreed with Dr. Murphy that the time differed materially when damage to the peritoneum from perforation took place. It all depended on circumstances. According to his view of it, it was the size of the perforation, the character of the pathogenic germs present, and the resistance of the patient. In some cases one might operate successfully with less trouble than with others. In some of his cases he operated thirty-six hours after perforation had occurred, when the perforation was small, and only slight leakage had occurred. When the perforation was large, the surgeon should be quick, as then erosion of the peritoneum occurred early. The higher the perforation took place in the intestinal canal, the greater the susceptibility for the absorption of poisons. With a perforation in the stomach, duodenum, or in the jejunum, there was greater danger of sepsis occurring early than when the perforation took place down in the rectum, the sigmoid flexure, or the colon.

SHOULD THE UTERUS AND OVARIES BE REMOVED IN OPERATING FOR DOUBLE PYOSALPINX?

BY

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WHETHER to remove all of the woman's sexual organs, at the time that it became necessary to remove both tubes for pus, has been a mooted question since surgical gynecology has begun its modern development. The field was a new and untried one, with no data upon which to base a judgment as to the advisability of so doing. A consideration of the woman's physical condition, when she is carrying a pair of pus tubes, is quite necessary, as a prelude, to the argument on this question.

The woman who has a pair of pus tubes is, as a rule, an invalid. Some are able to be about and attend to small duties of their vocation. Pain is an almost constant symptom, and that alone, on physical exertion, serves generally to confine her to her couch a greater part of the time. Some cases, however, do not suffer so severely. Fever, emaciation and anemia are common to a large percentage of them. This, however, is not the invariable rule, as we have all seen severe cases in whom no fever, headache,

or general emaciation were present.   Sterility and suppression of all sexual feeling are the rule, and when the inclination does exist, the pain produced by coitus is well nigh unbearable.   Dysmenorrhea is almost universal, whether the woman has been a subject of painful menstruation prior to her disease or not.   If she has had dysmenorrhea before, she certainly will have it more severely while suffering from disease of her tubes.

Too frequent and too profuse menstrual flow are also common occurrences, with a prolonged duration of the flow.   Leucorrhea is not always a prominent symptom in these cases of long standing.   Earlier in the history of every case, leucorrhea was a prominent symptom, but the uterine mucous membrane, after a time, seems to recover from its acutely diseased process and the discharges, in consequence, become less.   It, however, is present to some degree in most cases, due no doubt in many more to the congestion of the uterus from the diseased appendages than from causes within its body.

The history of operative procedure in these cases has passed through three quite well-defined periods.   The operation as first practiced by Tait and his followers, for several years, consisted in removing both the tube and ovary through the suprapubic incision, leaving the uterus.   In making a pedicle common to both tube and ovary, there was of necessity an incomplete removal of the tube, leaving, in most cases, a part of the proximal end.   Many of them were cured and others were not cured, the failure being in many instances, doubtless due to a continuance of the diseased process in that part of the tube remaining.   Some of them who had undergone this incomplete operation were again operated, the uterus was removed, and in many instances a cure resulted.   The natural inference was that the uterus was the offending organ, which prevented cure after the first operation.   Hence arose the teaching, that the uterus should be removed with the diseased tubes in order to insure success.   Following, came the resort of the French school to vaginal operation for pus tubes and then, of course, every vestige of uterus, tube and ovary was removed, whether it was necessary or not.   I have sat in the clinic of many a noted operator and have seen a comparatively healthy uterus and both healthy ovaries removed by vaginal section for a salpingitis of one side, and sometimes there was no pus in either tube.   This extreme procedure went on till the fashion of vaginal section began to wane, and the right minded operators began to return to the abdominal route.   During all this period the results of total

extirpation of the sexual organs upon the life and health of the woman were noted.

The physiological effect of total removal of uterus, tubes and ovaries is an enforced menopause, with all the ordinary symptoms associated with the change in the life-history of the woman, only intensified, in proportion as the artificial menopause is near to, or remote from, the normal age of its natural occurrence. The nervous symptoms are much more pronounced in a goodly percentage of cases thus brought on, than when the menopause occurs at the normal time and in the normal way. The younger the woman is, in my experience, the more intense are the nervous symptoms, and the older she is, that is, the nearer she is to the normal age of the natural menopause, the less severe are these symptoms. With the removal of the ovaries comes a gradual decrease in the sexual appetite of the woman, till at last it is completely lost. Coincidently, of course, there is atrophy of the vagina and the pelvic floor, tending to descent of the bladder and possibly, eventually, a vaginal hernia.

Learning by observation and being obliged to treat these poor sufferers, has gradually awakened in the minds of many operators a desire to prevent such results, and we should all be gratified to see a return to the abdominal section, with its possibilities of conservative surgery. And now we come to the third period of the history of operations for double pus tubes.

After an experience of about fifteen years with these various surgical procedures, and noting the effects of these operations, we are in a position to decide quite accurately, the amount of pain, discomfort and illness due to disease of the various anatomical parts of the woman's sexual apparatus. As a result of these observations and deductions, we are in a position to state positively, that it is not necessary to sacrifice all of these organs, when they are not all hopelessly diseased. In other words, we are justified in removing nothing but those organs which are distinctly diseased, and we are in duty bound to retain for the woman all that are not diseased. I believe that it can be stated as a surgical principle which can not be questioned, that our duty, when consulted by a patient for operation, is to afford that patient the greatest possible relief from the symptoms complained of, with the least mutilation, and the preservation of every organ possible to enhance the most perfect performance of all bodily functions.

The most common order of events in the development of pus

tubes is, first an endometritis, the infection then extends to the tubes, one or both and later, possibly, to the ovaries one or both, producing a pyogenic sac therein. The common origin of the primary endometrial infection is gonorrhea, or some pus infection at, or after labor or abortion. Each of the three anatomical structures which are involved, *scriatim,* in this infective process are different histologically, and behave differently as the result of infection.

There can be very little doubt, that the tubes are the most natural rendezvous of a continued and prolonged infective process, because of their histological structure, and also because of their shape. Very soon after the infection begins in them, their fimbriated ends are closed, swelling and contraction of their uterine ends seal that point of exit for the accumulated secretions, and, as a result of no drainage, the diseased process continues. The uterus, on the other hand, continues to drain freely and in time recovers a mastery over the diseased process. The ovary is diseased, only incidentally by its attachment to the fimbriated end of the tube during the acute process. The ovary is abscessed in a relatively small proportion of pus tubes operated upon. After pus tubes have existed for a period of months or years, I believe that the endometritis is a very minor pathological condition and that whatever discharge or endometritis exists, is, to a large degree, dependent upon the major pathological condition—the pus tubes.

Neither the uterus nor ovaries are the natural habitat of inflammation to the same degree that the tubes are. It is in them that inflammation may continue for months and years, perhaps in a semidormant state, yet capable of breaking out into a fresh and actively acute attack at any time, from no discernible exciting cause.

I believe that the diseased Fallopian tubes are the chief factors in the production of the pain, discomfort and invalidism incident to chronic pelvic inflammations. And I believe that with double or single pyosalpinx we must resort to complete exsection of the tube or tubes in order to arrest the disease. By complete exsection, I mean, removal of the tube and cornu of the uterus down to the uterine mucosa, closing the V-shaped chasm in the cornu with catgut and whipping over the free edge of the broad ligament out of which the tube has been stripped. I believe it to be as unsurgical to leave a part of the diseased Fallopian tube as it is to leave a part of the diseased appendix. Since I have been

doing this operation, I have not seen the failures to cure that were my experience before. If an ovary is abscessed, which fortunately does not exist in a large percentage of cases, it too may be removed, or the abscessed portion resected. Or the abscess may be opened, its pyogenic membrane dissected out, and the cavity treated with pure carbolic acid and closed. The rule should be to save as much healthy ovarian tissue as possible; even if it be only the fourth or eighth part of one ovary, preserve it. In some rare instances the uterus should be removed, but the occasion *is* rare. If the condition is known to be tubercular, the uterus should certainly be removed. But even if both tubes and uterus are taken out, still preserve all the ovarian tissue possible. For the past five years I have been studying the results of leaving in healthy ovaries in those cases of fibroids needing hysterectomy. The results have been very satisfactory. I am thoroughly convinced that we have no right under any circumstances to sacrifice an ovary or any part of one, which is not absolutely and incurably diseased.

With both tubes removed, the woman is sterile. So she was before operation. Besides, she was sick and she was suffering pain at all times and especially at menstruation. Removal of her diseased tubes will cure her pain and her dysmenorrhea, that is, if she is not normally subject to painful menstruation. Although sterile, every woman during the child-bearing period should have her menstrual function preserved to her. Its loss is prejudicial to her well being. This is especially true of younger women, and as I have before stated, the younger the woman, the more prejudicial it is. A woman who is deprived of her sexual organs to the extent that she does not menstruate, is conscious that she is unsexed, and the mere knowledge of the fact preys upon her and makes her feel inferior to other women. The effects are psychic as well as more remote ones acting on her sympathetics, producing nervous and nutritive changes. During the child-bearing period nearly every attribute that woman possesses is centered in her sexual system, and the removal of those impulses, be they mental or more remote ones upon her other bodily functions, will seriously change the whole course of her life in many important respects. Therefore, we should not remove the uterus if it can be retained; we should not remove any more ovarian tissue than necessary, but we should remove the tubes *in toto*. By so doing, will we best fulfill our duty to our patient, by making her a more perfect woman physically, mentally and physiologically.

64 RICHMOND AVENUE.

DR. ROBERT T. MORRIS, of New York, said that the cry of to-
day was to save as much ovarian tissue as possible. If one could
not save all of an ovary, he should save a little of it. If, how-
ever, an ovary must be removed on account of a marked patho-
logical condition, it should be done. If an ovary was taken out,
put in salt solution, and then transplanted into the peritoneum or
some place that was suitable, it would furnish its ovarian secre-
tion. The uterus would not degenerate. If the ovary was put
in the right place, the woman might become pregnant later. This
was all new work, and it was along lines that gave the greatest
inspiration. An ovary transplanted in the same patient did not
degenerate. It had a tendency to furnish a new ova and secre-
tion. On the other hand, if an ovary was grafted into another
patient, there was a tendency for it to degenerate.

As to the removal of the uterus along with septic tubes, the sur-
geon took away the greatest cause of distress, and the patient
might become much better and her cell resistance greater, and the
different groups of gonococci springing up from beneath the epi-
thelium would be inhibited, and in a short time, say a few months
or a year, her cell resistance will have increased to such an extent
that she would kill all the gonococci. The disease was self-limited;
it came to an end, and the woman was saved from infection.

A great many men talked about the exceptional cases, while
he was talking about the other cases. There were cases in which
the uterus and ovaries were sacrificed because of pyosalpinx, in
which one could first avoid a precipitate menopause. There were
cases in which one might avoid the increased danger which accom-
panied the removal of the uterus. There were also cases in which
pregnancy might occur, and still others in which one could avoid
the mental effect that went with a knowledge that the uterus and
ovaries were gone.

DR. RUFUS B. HALL, of Cincinnati, Ohio, endorsed the position
taken by the essayist and by the previous speaker. He believed
that physicians owed it to their patients not to remove ovaries if
they could be saved. He had been working along conservative
lines for a number of years. In a case of gonorrheal infection,
where one tube was filled with pus and the other contained no pus
that could be detected with the eye, yet was bound down with ad-
hesions, there was a question whether the tube ought to be removed
or not. He left the tube. He removed one tube and one ovary
that were involved in the suppurative process. He had operated
on a number of similar cases, and had done precisely the same
operation, and in every instance where the infection was due to
gonorrhea he was compelled to go back and remove the tube which
was left. In other cases where the operation was performed and
the infection was not due to gonorrhea, and one side only was re-
moved, seldom did he have to do a second operation on those pa-
tients, for the reasons given by the essayist. His experience was
that women were better if only an ovary or half of an ovary was
left, so that they could menstruate, and then nature could bring

on the menopause gradually in three or four years. He recalled a few cases in which he had left one-third of an ovary, and as a consequence menstruation had continued for three or four years, at the end of which time the menopause was established. The women were better off mentally and bodily when such conservative measures were resorted to.

DR. WALTER B. DORSETT, of St. Louis, Mo., agreed with everything the essayist had said relative to leaving an ovary after hysterectomy if not diseased, but he could not endorse the position taken of leaving an abscessed ovary. He had never seen an ovary with an abscess in it where he could draw the line of demarkation between the abscess and healthy ovarian tissue.

DR. HALL said he believed in saving an ovary where the tube on the corresponding side was abscessed, but not the ovary. He had never left an abscessed ovary in a case of gonorrheal infection.

DR. DORSETT (resuming) said he had never seen an ovary in which there was inflammatory disease or pus in the tube where this line of demarkation existed so clearly that one could say he would cut it off at a certain point and leave the remainder. Whenever he had an abscessed ovary to deal with, he took it out. On the other hand, if he had a well-defined abscess of the tube in which the inflammation stopped at the fimbriated extremity, he attacked the tube and ovary through the uterus, and he had learned from experience that when he had taken out an abscessed tube and an ovary one one side, and left the other ovary, when he thought it was in a fairly healthy condition, he had to operate the second time.

DR. MILES F. PORTER, of Fort Wayne, Indiana, heartily concurred in all that was said along the line of conservative operations on the tubes and ovaries. If abdominal surgeons were to do the work they should do, one of the first things was to instruct the general practitioner that the ovaries had some function to perform other than making the woman become a breeder or childbearer. It was quite a common thing for the average general practitioner to say in the course of a fibroid operation, "You are taking out the whole uterus; why not remove the ovaries at the same time?" Such practitioners stood in the way of abdominal surgeons.

DR. BYRON ROBINSON, of Chicago (by invitation), said it was very important to differentiate gonorrheal infection from other forms of infection. The sexual organs of a woman should never be removed except for grave disease, which meant malignancy. A suppurating ovary could be opened, drained and saved. He had pursued this practice for years. He had never removed an ovary if he could help it, any more than he would think of removing the testicles of a man under similar conditions.

With reference to double pyosalpinx of gonorrheal origin, he thought the operator might as well remove the uterus and both ovaries at once, because he had operated so many times after the uterus had been allowed to remain. Whenever he had a double

gonorrheal pyosalpinx to deal with in these days, he removed the
uterus and ovaries.

DR. W. D. HAGGARD, of Nashville, Tenn., thought most of the
members would agree that the uterus should not always be re-
moved in cases of double pyosalpinx ; also that the ovaries should
not be removed, and he believed Dr. Dorsett was the only dissenter
in cases of abscess of the ovary. He thought the time would come
when the abdominal surgeon would be able to shell out such ab-
scesses. Just as the recent work of Murphy had pointed out, in
attacking abscesses of the kidney and leaving healthy renal struc-
ture, so he believed the surgeon might leave healthy ovarian stroma
even in pus cases.

DR. ALBERT GOLDSPOHN, of Chicago, fully concurred in the re-
marks of the essayist, and confirmatory of them he made this
declaration, that if the physician would not make the mistake that
was often made, to operate on pelvic cases in the acute stage of
inflammation ; if he would wait until the acute stage had subsided,
even though an old chronic condition obtained, and then ruled out
the question that the infection was not from the genital tract, but
from the appendix, then he could preserve the function of men-
struation in at least seventy-five per cent. of all women with double
pyosalpinx. The speaker could prove this proposition if he had
several months' time to collect his cases, and he was sure the num-
ber would reach two hundred. How could this be done? In the
first place, it was essential to make a distinction between general
pelvic peritonitis and appendicitis, and a very wide ruling came in
here. A case of appendicitis should be attended to before the sun
went down. In a case of general pelvic peritonitis, the woman
should be put to bed for several weeks until the acute inflamma-
tion had subsided. Then the line of demarkation could be drawn
as to whether part of an ovary could be saved or a whole ovary.
The tubes should be thoroughly removed. He did not think Law-
son Tait removed the tubes thoroughly. Tying off a tube did not
occlude it. The tube was patulous again in a comparatively short
time, and any infection that obtained in the endometrium was free
to be emptied into the peritoneal cavity again, which accounted
for much of the misery of women for which some gentlemen had
blamed the uterus. The tubes should be exsected generously. If
there was a large metritic uterus, one could cut out chunks. The
endometrium should not be opened. It should be stitched up.
There should be a most thorough curettement of the endometrium.
Then came amputation of the pathological cervix, which doubtless
had been stitched in Emmet fashion a few times, which needed to
be thoroughly removed and not too low down. Then an abdominal
section might be done. When one got through, the uterus could be
held in correct position. With such a uterus, one could do a ventro-
fixation ; the patient would menstruate, lessening the evils that had
been delineated for her present life, and she would retain thereby
her social and legal prerogatives should she ever be a widow in
the future.

Dr. E. C. Dudley, of Chicago (by invitation), expressed himself as being in accord with the ideas of the essayist. The reason why so many uteri gave trouble after the removal of the tubes and ovaries in former times was fully and satisfactorily found by Lawson Tait. The tubes should be removed, carefully and thoroughly, close to the uterus. Without entering into the reasons therefor, experience had shown that when the tubes were completely removed a cessation of pathological function in the uterus followed.

Some one had defined pathology as physiology modified by disease. An organ which was diseased was performing a physiological function, but that function was modified by disease, and this was pathology. The removal of an entire tube when the uterus was healthy would be followed by cessation of the function in the remaining portion of the reproductive system. It followed also, that if the uterus was diseased, or if the physiology was modified by disease and the tubes were removed, there was just the same cessation of physiology in the uterus, and therefore a cessation of pathology. The physiology, even though modified by disease, was removed with the extirpation of the tubes and ovaries. Therefore, it made very little difference in ordinary cases whether the uterus was diseased or not. There was a cessation of disease after the thorough removal of the tubes, because the extirpation of them destroyed their physiological function, whether modified by disease or not. He thought if the operation for the removal of the tubes had been made thoroughly, clear to the horn of the uterus, the present discussion would not have taken place.

So far as the removal of the uterus was concerned, when the ovaries and tubes had been taken out, the walls of the uterus might be like the wall of an abscess cavity, thoroughly involved in the most extreme pathological process, and in such a case it would be wise to remove the uterus also. He could hardly think of a single case in which he had regretted failure to remove the uterus when the tubes had been taken out. In some cases there had been trouble with the uterus. It had remained heavy and hard, but after a year, sometimes less, the uterus had gone on to atrophy and ceased to be a source of trouble to the woman.

He questioned the removal of the ovaries when the tubes were taken out. He was again thoroughly in accord with the author, and it seemed to him it was hardly necessary to discuss the question very much, because it agreed with the general principles of surgery, namely, to save what could be saved. In a large proportion of cases, most of one ovary or considerable ovarian tissue might be preserved and remain healthy.

Dr. J. Henry Carstens, of Detroit, Michigan, said there were other cases than those that had been referred to. For instance, a woman was suffering from dysmenorrhea. She had a certain condition of the ovaries, perhaps cirrhosis. She was laid up two or three days of every month on account of suffering; incapacitated from following a useful vocation; suffering from a kind of men-

strual insanity or a neurotic condition which made her physically
unable to earn her living. He asked the question, What should
be done with such a patient? Those were the cases in which it was
necessary to remove every particle of the ovaries, and bring about
that change in the nervous system which was induced by the meno-
pause. These were patients whose ovaries the abdominal surgeon
did not want to save.

One should not try to lay down any hard and fast rules, as it
could not be done. The abdominal surgeon should take cognizance
of the particular pathological condition; he should consider the
woman's age and everything connected with her case.

Dr. Frederick Blume, of Pittsburg, Pa., said there was too
much sentimentality about this work, and within the last two
years abdominal surgeons had been doing too much conservative
work on the ovaries, largely for the purpose of having patients
menstruate and enjoy sexual intercourse. The aim of the surgeon
should be to get patients well and able to work.

Dr. John B. Murphy, of Chicago, thought in considering these
cases one should not disconnect cause and effect. If one had a
gonorrheal pus tube with symptoms, the mucosa would be found
to be closed at both ends or comparatively so. There was an in-
crease in the quantity of fluid each month, and the tension element
was the great factor, and not the adhesive element. When these
adhesions were removed, there were other adhesions to contend
with, because there was an abraded peritoneum; it made no differ-
ence whether the uterus was removed or not.

A gonorrheal pus tube usually meant a stricture or closure at the
fimbriated end. He had yet to see the first pus tube that had
a stricture within one-quarter of an inch and a half an inch of the
uterus. The stricture was usually five-eighths of an inch from that,
beyond was the dilated area, and all that was necessary was to re-
move the strictured portion. It was entirely unnecessary, in his
judgment, to remove a woman's uterus because she had gonorrhea.
If one were to reason on this basis, he might as well remove the
male urethra in a case of stricture. The idea of operating and re-
moving every uterus because the tubes and one ovary had been
removed should be blotted out, as it was not worthy of discussion
before a learned body.

Dr. Charles L. Bonifield, of Cincinnati, Ohio, heartily agreed
that in the majority of cases of bilateral gonorrheal pyosalpinx it
was necessary to remove both tubes, but he wanted to take excep-
tion to it because he did an operation on one case for bilateral pyo-
salpinx, removing one tube in its entirety and one-half of the other,
yet the patient afterward gave birth to a child, which was conclu-
sive proof in his judgment that once in a while we could save these
cases.

In the discussion, the members had dealt too much with the dis-
ease and not enough with the patient. What was to be done with
the patient? It depended on her social condition. In a poor,
working girl, who was on her feet ten or twelve hours a day,

every six days in the week, there was not much chance for con-
servative surgery. On the other hand, in a patient who was well-
to-do, who could afford to take the chances of undergoing a sec-
ond operation, for the sake of giving birth to a child, or having
her menstrual function maintained, if one wanted to do conserva-
tive surgery on the appendages, he would not operate in the acute
stage of the disease, but let nature do all the healing she would
before the surgeon should lay on his hands. The patient should
rest before operation was undertaken, and not be operated upon
until the temperature had been normal for a long time.

Dr. Frederick closed the discussion.

THE INDICATIONS AND TECHNIQUE OF VAGINAL DRAIN-
AGE FOR SUPPURATION IN THE PELVIS.

BY

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During decenniums and centuries past, different parts of the
internal female generative organs have successively been regarded
as the chief sites of inflammatory disorders. In earliest times,
when the most crude ideas on this subject prevailed, naturally
the uterus was blamed mostly. Later the tubes and ovaries came
in for a prominent share, and in more recent times, the pelvic
peritoneum was exploited, chiefly by Bernutz and Goupil as a
chief seat and a distributor of inflammatory processes to the gene-
rative organs invested by it. With reference to the areolar con-
nective packing tissue that fills the spaces not otherwise occupied
between the pelvic organs and beneath their peritoneal envelope,
it must be admitted that it is scarcely bulky enough to become the
seat of what in other parts of the body would be called a phlegmo-
nous inflammation, without causing secondarily by continuity a
local peritonitis also. But this important tissue is so filled with
blood vessels, lymphatics, and glands, and it is so very extensively
and necessarily present in the female pelvis—and in macro-
scopic or tangible quantities too—that its capacity for evil when
it becomes infected is great, and to overloook or ignore this fact
is an equally great error. The relative abundance and distribution
of this tissue in the female pelvis and the abundance of lymphatics
and blood vessels in it, were well demonstrated by frozen sections

of the pelvis made by W. H. Freund and mounted in alcohol.
Others have attempted less successfully to show the course that
infections of tissue would or might take in it, by artificial injec-
tions of it with glue or mucilaginous fluids.   In more noticeable
amounts, this tissue is found   subperitoneally upon the borders
of the uterus, along the base of the broad ligament filling the
space between the vaginal vault below, the pelvic peritoneum
above, the rectum behind and the uterus and bladder anteriorly.
It is present throughout the entire broad ligaments and in the
smaller ones known as the sacrouterine ligaments.   It is distribu-
ted along the round ligaments to the external (subperitoneal)
inguinal rings, likewise along the uterovesical ligaments to the
cavum Retzii in front of the bladder whence it communicates
with the femoral rings and canals.   This distribution of the
areolar tissue makes it quite clear why abscesses occurring in it,
if left to themselves, rupture spontaneously, in the order of fre-
quency usually into the rectum, the vagina, the bladder or the skin
near Poupart's ligament, or over in the femoral canal.   Likewise,
the almost exclusive source of infection (labor or puerperium)
of this tissue is also accounted for by its relative abundance about
the cervix uteri in that portion of the extra-peritoneal and supra-
vaginal space above described, which expands, certainly during
the later months of gestation, and during the expansion of the
cervix uteri antepartum.   Then, taking in connection with this
circumstance, the further well known fact that the cervix uteri
during mature and also premature childbirth, becomes very thin
and soft like a succulent membrane, that abrasions or slight lacer-
ations upon it during parturition are quite the rule, and that the
lymphatics and sometimes small veins in it are then wide open,
it becomes obvious enough why infection of the parturient chan-
nel during labor and during the puerperal period, will pass most
easily, directly and continuously through the cervix wall,—the then
most vulnerable and also exposed portion of the uterus,—into the
cellular tissue in the expanded paracervical space and cellulitis
(parametritis), is self-evidently the initial inflammatory process,
as is abundantly demonstrated by careful clinical observation.
Pelvic cellulitis or parametritis as Virchow named it, was recog-
nized as a pathologic entity coördinate in rank with pelvic peri-
tonitis (perimetritis of Virchow) by this the lamented father of
cellular pathology himself.   He recognized both of these as dis-
tinct, although frequently combined pathologic processes and gave
to each its proper place.   There is, therefore, no need nor excuse

for doubting the pathologic bearing of this pelvic cellular tissue when it becomes infected (in puerperio). Nevertheless, some would-be modern lights appear to discredit this fact either in word or impliedly by opposition to all vaginal operating for infectious conditions in the female pelvis. In this they are, however, as much in error as were some of their fathers of the last generation who mistakenly regarded as pelvic cellulitis cases that were really diseased appendages and pelvic peritonitis. Parametritis does and must occur, and as a primary process, too, as long as women become infected during childbirth; and the cicatricial connective tissue contractions that occur in the chronic and atrophic form or ending of this process have recently been shown by Freund to be a cause of hysteria.

The valuable postmortem observations of Bernutz and Goupil were correct enough in themselves, but their conclusions were wrong because the cases they studied were not such as died from infection during labor, but they were cases of pelvic peritonitis and diseased adnexæ, such as are the rule almost exclusively when infection occurs at any other time than during labor or the early puerperium. In the absence of the peculiar parturient conditions above described (expansion, thinning and abrading of the cervix and expansion of the paracervical connective tissue spaces during labor), infection, when it passes beyond the vagina and the cervical mucous membrane, causes successively an endometritis, endosalpingitis and localized peritonitis about the ovary and opening of the tube where, accordingly, we find peritoneal adhesions most frequently. It usually never causes parametritis (pelvic cellulitis) in such cases unless traumata (perforation of vagina or cervix) have occurred, as from accidental, unskilful or criminal use of instruments. In the absence of such traumatism an internal gonorrheal infection, for instance, occurring as it usually does not near labor, will practically never cause a parametritis.

Abscesses occurring in the areolar tissue about the cervix over the vaginal vault, even if they do engage the peritoneum above, will make themselves known not merely by a tumefaction, but also usually by some encroachment upon the vaginal cavity; and certainly everyone should, and probably does, open such abscesses from the direction in which they "point"—into the vagina. Hematoceles, and sometimes circumscribed peritoneal exudates, when they become infected, will form abscesses that are readily accessible from the posterior cul-de-sac and should certainly be evacuated into the vagina, and obliterated by means of suitable

drainage into it. If there are inflamed appendages or nonpuru-
lent exudates higher up, they are thereby given a better chance
for spontaneous improvement or recovery ; and in case a secondary
celiotomy is nevertheless required later, it will be with less ex-
tirpation of adnexæ usually and a much lower rate of mortality
than would have obtained in a primary radical operation. When
in cases of this kind the vaginal incision shows, however, that
either the extravasation of blood, such as arises from ruptured or
aborted tubal pregnancy mostly, or the inflammatory exudate is
not purulent, then I always do a ventral section immediately also,
fulfill all the indications within the pelvis completely, and drain
into the vagina ; unless the affected parts in some cases are excep-
tionally well accessible by the posterior vaginal incision alone or
supplemented by an anterior vaginal celiotomy.

More questionable than in the foregoing is the proposition to
drain tubal sacs which occur in distinctly organized lumina, orig-
inally lined perfectly with mucous membrane, and likewise the
proposition to drain ovarian abscesses because of their multi-
locular or honeycomb structure. Theoretically, these are quite
formidable considerations in histologic pathology ; and they will
hold true, too, as contraindications in most multilocular abscesses
such as are usually present in ordinary tuboovarian septic con-
glomerates. But they will not hold true in larger unilocular tube
sacs that can be emptied and packed, nor in ovarian abscesses
whose honeycomb structure can be broken down by a finger into
one cavity and this likewise solidly packed. The gauze packing in
these cases should remain *in situ* at least a week. The purpose of
this is two-fold :

1. Abstraction of culture media and prevention of continued
suppuration by copious capillary drainage during the first two to
three days.

2. After this time the capillary drainage capacity of the gauze
is usually ended ; but its continued presence is needed to hold the
walls of such sacs or cavities widely expanded and to arouse a
layer of granulation tissue upon them by its irritation as a for-
eign body. It is evident that this can be achieved upon or in place
of the mucous lining of a pus tube, which has usually lost much
of its vitality and histologic structure ; and that it can be accom-
plished upon the walls of a simple or a multilocular ovarian ab-
scess after its friable septa have been broken down, is clear
enough. Some cases of parametritic abscess beginning in the
puerperal state, and some cases of pelvic peritonitis with diseased

adnexæ, particularly those arising from a leaking vermiform appendix that hangs low down into the small pelvis, are too profoundly septic and altogether too much reduced to endure a radical operation at once. To such cases the preliminary drainage is a life-saving measure by improving their condition so that they can bear a radical operation later with about the same lower rate of mortality as others do that are not so reduced. Again, where a radical operation becomes necessary secondarily, the preliminary vaginal drainage enables the inflammation to subside in the uterus, or tube or ovary, that may be associated with the hopelessly diseased parts in the same case, so that the former need not be removed, as would have been deemed necessary if the radical operation had been performed in the first instance or during the acute stage, because a better line of demarcation has been drawn between the redeemable and the hopelessly diseased parts.

Most of the cases that in my experience have required a secondary radical operation after vaginal drainage of pelvic abscess, have been either clearly or most suspiciously cases in which the infecttion came from the vermiform appendix. In cases where the infection came by way of the genital tract, a secondary operation has not been required in as much as 10 per cent. of the cases. The gross anatomical condition that most strongly invites vaginal drainage of pelvic abscesses as an auspicious procedure is that they may be accessible, by being situated low down and by some distension of the posterior cul-de-sac, thus creating an increased space between the posterior surface of the uterus and the rectum. This will be true of nearly every parametritic (cellular) abscess, of suppurating hematoceles, of exudates usually, and sometimes of ovarian abscesses or the larger unilocular tubal sacs.

TECHNIQUE.

Some years ago I drained a laterally located pelvic abscess in a private house by a small incision laterally and posterior to the uterus. Being afraid to make a sufficiently large incision on account of the proximity of the ureter and uterine artery, I dilated the smaller one and placed a loop of perforated soft rubber drainage tube through it into the abscess cavity along with some gauze packing, the ends of the tube projecting into the vagina. The case was left in care of the family physician, who, when removing the drainage, experienced a severe hemorrhage probably from the uterine artery. He had to apply several forceps to the parts to stop it. He caught the ureter also and induced a ureterovaginal

fistula and an ascending infection for which I removed one kidney. The patient became entirely well afterwards and had a child even; but the case teaches much.

Although Duehrsen holds the lateral vaginal incision as eligible in cases of laterally located pelvic abscesses, I think that such incisions are very injudicious, as the above case shows, and they are unnecessary if the following *modus operandi* be followed: After the posterior vaginal vault has been exposed by retractors to the same degree as for a vaginal hysterectomy and the posterior or both lips of the cervix uteri have been caught in a vulcellum forceps and drawn forward, an incision, never less than six centimeters long, is made transversely, from one to two centimeters back of the cervix and equidistant from the median line, through the vaginal wall into the areolar tissue beneath the peritoneum, but not into it. This should be done with a thermo-cautery because it saves blood that those feeble patients need badly. It enables one to have a dryer, clean field and often to save time otherwise required for hemostasis, and the opportunities for absorption of septic elements into new areas are much less. This wound should always be large enough to insert at least two fingers completely without stretching it. The peritoneum is opened by a finger passed along the posterior surface of the uterus between the latter and a forceps caught *pari passu* upon the loose tissues behind the finger. When the abscess to be evacuated is in the cul-de-sac it is now readily mopped out with gauze and its walls are then carefully explored with a finger for any secondary or by-pockets which are opened up, and to study the configuration of the entire cavity with reference to a complete and even packing of it. This is made with one very long and continuous strip of iodoform gauze, after the cavity has been sponged out as dry and clean as possible, usually without irrigation, unless there is absolute certainty that the general peritoneal cavity is securely walled off and that no break or defect has been made or discovered in that important wall by the previous digital exploration and manipulation. Irrigation is safe and proper in exceptional cases only, and never in the cases of the following kind: where the opened cul-de-sac, *i.e.*, opened peritoneal cavity, is merely a vestibule to a cellular tissue or ovarian abscess or a tubal sac, singly or combined, which are to be drained thus transperitoneally. Such tube sacs or laterally situated abscesses are entered with a finger assisted by a forceps and are opened into the widely opened cul-de-sac. Their cavities are likewise explored with a finger

and packed very carefully and solidly with iodoform gauze, after all friable portions or septa in them have been broken down and the cavities sponged out dry with suitably curved forceps. The cul-de-sac is then also packed to procure eventually a continuous extraperitoneal channel outward, and as large or thick a wad of gauze as possible is placed through the opening in the vaginal vault into the vagina. These deeper packings are never disturbed in less than a week's time, and when a pus tube has been packed, not until after ten days, unless a rise of temperature should indicate a retention of wound secretions in the parts. The iodoform gauze packing in the vagina, however, is renewed every two to three days. At the time of removal of the deep packings, the cavities are washed out thoroughly and then repacked more loosely. This is repeated usually once or twice at intervals of two to three days, and after that usually simply antiseptic vaginal douches are given twice a day until the supravaginal cavities are obliterated.

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Dr. Edward J. Ill, of Newark, N. J., first began to practice vaginal drainage about fifteen years ago. There was no question as to what should be done with those cases of cellulitis or pelvic lymphangitis of a puerperal nature. They must be opened from below if one desired to get at them, and the sooner they were opened, the better. It was certainly true in cases of tubal or ovarian abscess, or in cases of acute inflammation due to infection of the tubes and ovaries, that the patient recovered more promptly after opening the cul-de-sac and allowing serous drainage. He had seen this again and again. But the drainage of tubal and ovarian abscesses was quite different. While it might be palliative, it was by no means curative, and he had seen less dangerous results by putting a blister in the vagina than he had from opening the vagina and establishing serous drainage. The old practitioners of many years ago were by no means such fools as we were sometimes led to believe, and the old-fashioned blister put in the vagina had saved the speaker more annoyance and his patients more pain than anything he knew of. We should not forget that when the vagina was cut, especially with the cautery, a nasty scar was made which could not be removed. We should not forget the teachings of Emmet that scars anywhere in the semi-erectile tissue were productive of a neuralgic condition or pain. These scars produced trouble only so long as the menstrual and sexual life continued. The cautery produced more mischief here than the knife, while in all instances an uneven scar was left by the long-continued drainage of two or three weeks, and granulation tissue was formed inside of the scar. He suggested avoiding in operations through

the vagina the use of the cautery, on account of the danger of hemorrhage from the small vessels which came from the hemorrhoidals and connected with the uterine vessels above, and which were sometimes difficult to ligate. A further great danger to the operation from below was the excessive hemorrhage which sometimes occurred in the opening of these abscesses. During a trip abroad he saw one woman in whose case vaginal drainage was advised for these abscesses and within a week the operator extirpated the uterus for a hemorrhage from the ovarian abscesses which he could not control.

DR. D. TOD GILLIAM, of Columbus, Ohio, said there were several things to be considered in connection with vaginal drainage. The first was the cause of the trouble. Unless there was cellulitis, he did not think one was justified in resorting to vaginal drainage. The landmarks of a cellulitis were a very tense, almost iron-like, condition of the vault of the vagina. If one did not get fixedness and an enlarged condition of the uterus, he had better not attempt anything in the way of vaginal drainage. He did not believe in draining pus tubes. There were a number of objections to draining through the vagina in cases of pus tubes, and these had been enumerated. He agreed with Dr. Ill in not using the cautery, and believed it was better not to make a transverse incision. He was in accord with Dr. Goldspohn that one should not make a lateral incision, but that he should work from the middle outward always. He expressed himself in favor of draining in those cases of infection of the lymphatics or of the cellular tissue. He favored draining through the vagina where the parts were accessible, but if one had to go through healthy tissue or to endanger parts such as the bladder or bowel, he was not in favor of it. It was a well-known fact that the worst form of germ one had to contend with was the streptococcus. This germ would live for a long time in cellular tissue, but it would outlive its life in the course of a few weeks. In other cases it would survive indefinitely. If one could reach this type of pus through the vagina, or in any other way except through the peritoneal cavity, it was a distinct advantage. One sometimes found the abscess pointing over Poupart's ligament. If he could dissect between the peritoneum and the underlying tissues without entering the peritoneal cavity, then he would accomplish great good, draining thoroughly in the manner indicated by the essayist, and he would have done the patient great service. If the tubes were affected above, he did not think one could afford to wait before making an operation. If there was good reason to act at once, one could open the abdominal cavity, but in treating tubes through a vaginal opening he thought one was making a great mistake. During the sexual life of a woman, as long as these parts were erectile, they would be subject to frequent erections, and every times erection of this tissue occurred there would be pain, tension and pressure, which would make the life of the woman miserable. Some of the worst forms of nervous disturbance came from this condition of bound-down erectile tissues

about the pelvis. This would cease after the menopause, unless the woman retained her sexual passion after that period, then, of course, she would have periodical pains after the menopause.

DR. H. W. LONGYEAR, of Detroit, Mich., said the question of vaginal drainage should be more distinctly and definitely laid out. One should distinguish between those cases that were drained simply to get rid of pus in the cellular tissue, as in the cases mentioned, where there was post-partum infection, and those which came from gonorrheal infection of the tubes and ovaries. There was no question about the propriety of vaginal drainage in the first-named cases. In the second, however, there was, and in his opinion it should only be done as a life-saving temporary measure, where a woman was *in extremis*, due to long-continued suppuration, prolonged fever and infection, when she would not stand a radical operation. He thought these exceptional cases should be drained at first through the vagina, but this measure should not be made to take the place of the radical operation.

As to the use of the cautery in attacking these cases, he thought it was unnecessary. He believed in the transverse incision made close to the cervix through the vaginal wall, and then after the cellular tissue had been entered, passing through with the finger and blunt forceps into the peritoneum and pus sac. This was perfectly safe, and was free from any danger of hemorrhage. He had never seen a hemorrhage occur from opening the vagina in this way that amounted to anything. He had seen it occur in one case where he opened in the median line longitudinally. He did not believe in the Paquelin cautery, as it made too long an operation. It did not accomplish very much. One could not open the pus cavity well. He believed in the use of a rubber drainage tube in these cases, as the drainage was more thorough, and one did not have the irritation which accompanied the use of gauze, together with the necessity for removing it.

The use of the douche inside of these pus cavities was dangerous. He would never think of using it. One was in danger by so doing of pushing the pus up into the peritoneal cavity, because very often it was not entirely walled off.

DR. J. HENRY CARSTENS, of Detroit, Mich., said that gynecologists sometimes tried to do too much. If there was a pus cavity, it was a good thing to open it. The incision should be made close to the uterus, and one would not be troubled with the scar referred to by Dr. Ill. He favored attacking pus tubes through the vagina. This could be done in many instances. Many of the cases that were drained would require secondary operations sooner or later.

DR. GOLDSPOHN, in closing the discussion, said those who had observed carefully what he had said in the paper would know what were the indications for drainage in tubal and ovarian abscesses.

SHORTENING THE ROUND LIGAMENTS BY THE BLUNT-HOOK METHOD, WITH REPORT OF CASES.

BY

H. W. LONGYEAR, M.D.,
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The last few years have added much to the surgery of the round ligament. The desire to improve on Nature by making new ligaments, or makeshifts to act as such, has largely given way to the notion of utilizing Nature's own structures to do the work it was apparently intended they should do. The result is that we have less and less of ventro-fixation and vagino-fixation and more and more of new and ingenious devices for compelling the recalcitrant round ligament to do its duty. It seems but a short time since the general surgeon was wont to look with pity upon the searcher for so useless a thing as the round ligament. It is less than five years ago that an abdominal surgeon, who counts his cases with four figures, told the writer that he did not do the round ligament operation because he did not find any cases that needed it. Possibly that idea may have been one of the contributing elements to account for his great number of abdominal sections. To-day the great number of different devices for making the finding of the ligament easy, and of lessening its length, testifies to the fact that this structure is really of some anatomical importance and that to be up with the demands of the times the surgeon must know how to curtail its length in one way or another

The general surgeon insists, as is his habit, on an ocular demonstration of the ligament lying at its whole length in the inguinal canal and surrounded by its proper anatomical structures; or, if his eyesight is bad, he searches for it inside the abdomen, for here he can get a view of the uterus and attached to it he is sure of finding the ligaments. To shorten them, then, is now a matter of a name. If he doubles them one way and puts in a stitch it is Dudley's method; if they are doubled the other way it is another distinct method, and must have the author's name; if they are sewed to the back of the uterus, the front of the organ, or the loops shoved through holes in aponeurosis, the operator's name figures in each lap, fold and hole. This all goes to show that the round ligament has become a power, and that the surgeon has it on his conscience, so that now the ligament is bound to become

shortened in those cases that need it, and in some others, and each surgeon will employ that method which he thinks is best suited to the needs of his patient and to his own peculiar abilities. And that, after all, about covers the ground in any matter of surgery, each operator having his own peculiar adaptability to which his work must be made to conform. The achievement of the beneficent result is the desideratum. How it is to be attained depends on the needs of the patient and the operator's skill and judgment, or, in other words, his adaptibility.

The blunt hook operation has appealed to me because it offers the patient most for the least risk, and that, after all is said, is what we are all looking for, whether it be in stocks and bonds or in *life* that we are dealing. The details of the blunt hook operation were given by a writer in a paper read before this Association in 1899, entitled "A Simple, Effective and Esthetic Operation for Shortening the Round Ligament," so that a brief mention of the technique will be all that is necessary at this time.

First, the location of the internal ring is determined by finding the point of crossing of Poupart's ligament and the femoral artery, as the ring is situated immediately back and above it. Beginning half an inch inside this point and cutting toward the pubic end parallel to Poupart's ligament, a one-inch incision is made through skin, fat and superficial fascia. Eye retractors and blunt hooks are then used, the tissues separated down to the aponeurosis of the external oblique, which is thus laid bare to the eye, to the extent of about one square inch. A puncture is now made through this aponeurosis, one-quarter of an inch long, situated just above Poupart's ligament and to the back of the square inch of cleared aponeurosis, and through this the blunt hook is inserted and the ligament drawn out, usually with more or less of the fat of the canal along with it. The ligament is isolated and its fibrous attachments stripped back toward the internal ring with blunt-pointed dressing forceps, the ligament drawn out to the necessary length, an aneurism needle passed through the aponeurosis and the loop of ligament drawn through this, folded back on itself, and with one stitch of kangaroo tendon made fast, the suture embracing in its grasp the edge of the aponeurosis where the ligament first passes through it, half of the ligament at the same point and half on each side of the loop that is folded back on it. The skin is then closed by a running catgut suture and dressings applied. The operation is applicable only in cases of mobile uteri without diseased appendages—in which cases it is an ideal procedure—or

NO.	AGE	OCCUPA-TION	BIRTHS AND MISCARRIAGES	PATHOLOGY	DATE OF OPERATION	CONVALES-CENCE	ADDITIONAL OP-ERATIONS AT SAME TIME	LATE RESULT	REMARKS
1	40	Housewife	1 child 13 years old; no miscarriages	Double laceration cervix, endometritis. Mobile retroversion of 3d degree	Jan. 31, 1899	Good; no suppuration	Curettage and double trachelorrhaphy	Sept. 24th, 1900. Uterus in normal condition	Prolapse still causes some discomfort, for which patient uses soft rubber pessary at times.
2	41	Housewife	1 child 15 years old	Mobile retroversion of 2d degree and prolapse of uterus	March 8, 1899	Good; no suppuration	Curettage	Sept. 8, 1903. Uterus in anteversion	Left ligament very large; shortened six inches; right ligament adherent inside of pelvis and was not shortened.
3	38	Housewife	4 children. Youngest three years; 1 miscarriage 13 years ago	Appendicitis. Endometritis. Mobile retroversion of 3d degree	March 11, 1899	Good; no suppuration	Appendectomy Curettage	Oct. 4th, 1902. Uterus in correct position in every way	
4	41	Housewife	Nul	Endometritis. Mobile retroversion of 2d degree	March 18, 1899	Febrile; suppuration both sides	Curettage	April 19, 1900. Uterus retroverted	At time of operation patient nearly died under anesthesia and sepsis no doubt occurred during consequent long manipulation of patient, and this doubtless caused failure of operation.
5	38	Teacher	Virgin	Endometritis. Mobile retroversion of 3d degree	March 23, 1899	Slight febrile; suppuration left side	Curettage	Dec. 29, 1902. Uterus in normal position	Did an unsuccessful vaginal fixation in 1896.
6	30	Housewife	3 children; 1 miscarriage	Ruptured perineum. Double laceration of the cervix. Endometritis. Mobile retroversion of 3d degree	March 26, 1899	Good, except slight stitch abscess in one groin	Perineorrhaphy, trachelorrhaphy, curettage	Feb. 2, 1900. Uterus in normal position	

No.	Age	Occupation	Children; miscarriages	Condition	Date	Result	Operation	Follow-up	Remarks
7	32	Housewife	1 child. No miscarriages	Urethral caruncles at sites of ducts of Skene's glands. Mobile retroversion of senile uterus. Catarrh of same	April 13, 1899	Good; no suppuration	Thermocautery of caruncles	March 11, 1903. Her physician writes that patient is perfectly well	Senile atrophy of uterus due to oophorectomy four years before; cervix not dilatable, consequently no curettage; round ligament exceedingly attenuated.
8	31	Housewife	1 child; no miscarriages	Endometritis, mobile retroversion of 2d degree	April 14, 1899	Good; no suppuration	Curettage	Sept. 29, 1899. Uterus in perfect position, and later reports up to 1901 were that patient was perfectly well	Had used pessaries of increasing size for several years.
9	35	Housewife	4 children; no miscarriages	Mobile retroversion of 3d degree. Prolapse of 2d degree	April 12, 1899	Good; no suppuration	None	January 27, 1901. Uterus in good anteversion; Uterus still low	One year before did perineorrhaphy, curettage and vaginal fixation on this patient; hard-working woman.
10	36	Housewife	1 child; no miscarriages	Mobile retroversion of 3d degree	May 13, 1899	Good; no suppuration	None	January 26, 1903. Uterus in normal position	Patient had curettage, trachelorrhaphy and perineorrhaphy done by another physician six months previously.
11	56	Housewife	7 children; 1 miscarriage	Large hyperplastic uterus; mobile retroversion and prolapse almost of 3d degree; ruptured perineum of 2d degree; rectocele	May 24, 1899	Good; no suppuration	Curettage; Perineorrhaphy	October 10, 1899. Uterus in perfect position in every way	Patient was very fat and had passed climacteric nine years.
12	36	Housewife	1 child; no miscarriages	Endometritis; double laceration of the cervix; mobile retroversion	May 26, 1899	Good; no suppuration	Curettage; Trachelorrhaphy	Sept. 2, 1899. Uterus in good position	Clinical patient; did not return after last date.

NO.	AGE	OCCUPATION	BIRTHS AND MISCARRIAGES	PATHOLOGY	DATE OF OPERATION	CONVALESCENCE	ADDITIONAL OPERATIONS AT SAME TIME	LATE RESULTS	REMARKS
13	36	Housewife Widow	2 children; no miscarriages	Hyperplasia uteri; endometritis, ruptured perineum of 2d degree; mobile retroversion of 3d degree	June 20, 1899	Good; no suppuration	Curettage; Perineorrhaphy	June 20, 1903. Uterus in perfect position	Patient had worn pessaries for years previous to operation and vagina was much distended because of the large sizes used.
14	32	Housewife	Nul	Endometritis; mobile retroversion of 2d degree	June 28, 1899	Good; no suppuration	Curettage	April 21, 1900. Uterus in normal position	
15	46	Clerk	4 children; no miscarriages	Uterine hyperplasia; mobile retroversion of 3d degree; hemorrhoids	Oct. 20, 1899	Good; no suppuration	Curettage; Whitehead's operation on hemorrhoids	Nov. 2, 1900. Uterus in normal position; has been in perfect health since	Complete invalid before operation.
16	42	Laundress	4 children; 1 miscarriage	Ruptured perineum; lacerated cervix; endometritis; mobile retroversion of 1st degree	Oct. 17, 1899	Good; no suppuration	Perineorrhaphy trachelorrhaphy; curettage	January 10, 1900. Patient in good health; uterus in normal position	Failed to find either ligament because of the greatly relaxed condition of all the tissues, due to subinvolution.
17	33	Seamstress	6 children; 3 miscarriages	Ruptured perineum, 2d degree; lacerated cervix (left side) endometritis; mobile retroversion of 3d degree	Nov. 4, 1899	Good; no suppuration	Perineorrhaphy trachelorrhaphy; curettage	May 2, 1900. Uterus in normal position; has gained 25 lbs.	
18	43	Housewife Virgin		Endometritis; prolapsed normal ovary; mobile retroversion	Nov. 2, 1899	Good; no suppuration	Curettage	April 16, 1901. Uterus in normal position; Ovary not troublesome	

No.	Age	Occupation	Pregnancy history	Diagnosis	Date	Condition	Operation	Subsequent history	Remarks
19	45	Housewife	5 children; 1 miscarriage	Uterine hyperplasia; mobile retroversion of 3d degree	Nov. 9, 1899	Good; no suppuration	Curettage	March 5, 1902. Uterus small and in normal position; perfectly well	Had used pessaries of increasing size with the patient for eight years, till vagina was much distended and instruments ceased to hold the uterus in place.
20	41	Housewife	7 children; 2 miscarriages	Ruptured perineum; lacerated cervix (bilat.) uterine hyperplasia; mobile retroversion of 3d degree; extensive internal hemorrhoids (terrible pruritus vulvæ)	Dec. 14, 1899	Good; no suppuration	Perineorrhaphy; trachelorrhaphy; curettage; excision of hemorrhoids	Oct. 1902. Was confined in May last, by Dr. J. W. Warner. Uterus afterwards in normal position	Pruritus ceased for two months after operation, then returned and was cured permanently by intra-uterine treatments with iodine and carbolic acid.
21	38	Housewife	3 children	Uterine hyperplasia; mobile retroversion of 3d degree and prolapse; ruptured perineum of 2d degree	Jan. 8, 1900	Good; no suppuration	Perineorrhaphy; curettage	May 1, 1903. Uterus in normal position; patient has been well since operation	Lived on a ranch for two years after operation and rode horseback a good deal; constant use of pessary necessary for several years before operation.
22	36	Wife of Laborer	Nul	Endometritis; mobile retroversion of 2d degree	Jan. 23, 1900	Good; no suppuration	Curettage	March 27, 1900. Uterus in normal position	Clinical patient; did not return for later examination.
23	25	Housewife 4 years married	Nul; no miscarriages	Endometritis; prolapse of left ovary (normal size); retroversion of 2d degree with slight adhesions: adherent prepuce of clitoris.	Dec. 6, 1899	Good; no suppuration	Abdominal section and breaking up of adhesions; curettage, freeing of prepuce	July 13, 1903. Uterus in normal position. Dr. F. N. Henry reports: Sept. 14, 1903, confinement 1 year ago. Uterus since in normal position	Right ligament large and strong, shortened four inches; left ligament very fragile, broke inside of ring and was not regained.

NO.	AGE	OCCUPATION	BIRTHS AND MISCARRIAGES	PATHOLOGY	DATE OF OPERATION	CONVALESCENCE	ADDITIONAL OPERATIONS AT SAME TIME	LATE RESULTS	REMARKS
24	30	Housewife	Nul; no miscarriages	Endometritis; mobile retroversion of 3d degree	March 2, 1900	Good; no suppuration	Curettage	February 15, 1902. Uterus in normal position. Has been well since operation	One year before did an abdominal section and ventro-suspension which was unsuccessful.
25	27	Seamstress	Virgin	Endometritis; mobile retroversion of 2d degree; external hemorrhoids	March 21, 1900	Good; no suppuration	Curettage; excision and suturing of hemorrhoids	February 7, 1901. Uterus in good anteversion	Right ligament shortened 5 in., left 3½ in.; both slender.
26	30	Housewife	1 child (still born)	Endometritis; prolapse left ovary; retroversion of 3d degree, not very readily replaced; slight adhesions	March 22, 1900	Good; no suppuration	Curettage	October 18, 1900. Uterus is slightly retroverted and patient feels pulling sensation in right groin	Patient was confined of a dead child (2d) 1902, since which Dr. Florence Huson reports uterus in normal position.
27	37	Housewife	2 children; no miscarriages	Endometritis; lacerated cervix; rectocele; mobile retroversion	April 5, 1900	Slightly febrile left ligament suppurated	Curettage; trachelorrhaphy; perineorrhaphy, posterior colporrhaphy	May 1, 1902. Uterus in normal position	Made an unsuccessful vaginal fixation in 1895.
28	36	Housewife	1 child; no miscarriages	Ruptured perineum of 2d degree; ovaries prolapsed (normal size); uterus retroverted and not very easily replaced	April 21, 1900	Good; no suppuration	Curettage; perineorrhaphy	Feb. 26, 1901. Uterus in first degree of retroversion; pain and pulling in both scars	Patient was treated with ichthyol and glycerine tampons for three months before operation, so that uterus was fairly mobile at that time; slight adhesions apparently remained to prevent entire success of the operation.

No.	Occupation	History	Condition	Date	Result	Operation	Notes	Remarks
29	Stenographer	Virgin	Prolapse of sensitive, but not enlarged, tubes and ovaries; not freely mobile; retroverted uterus of 3d degree	May 24, 1900	Good: no suppuration	Curettage	January 31, 1903. Uterus in retroversion without instrument. Operation a failure except in enabling the use of pessary, which was not borne before	This patient should have had an abdominal section, but feared it because of an organic heart trouble.
30	Housewife	2 children; miscarriage	Ruptured perineum of 2d degree; lacerated cervix (bilateral); uterus retroverted 2d degree	June 30, 1900	A febrile, slight suppuration in left ligament	Perineorrhaphy, trachelorrhaphy; curettage	Jan. 20, 1901. Uterus in normal position, but dragging pains are felt in both groins Feb. 27, 1903. Uterus retroverted and partially fixed, catarrhal appendicitis July 2, 1903. Uterus in normal position	Had an abortion with streptococcic infection causing phlegmasia six years before ligament operation.—March 5, 1903, abdominal section, appendectomy and removal of outer extremities of Fallopian tubes, which were strongly adherent to rectum, and posterior wall of pelvis at fimbriated ends; tubes not enlarged or diseased, but much attenuated by stretching. Round ligaments taut.

NO.	AGE	OCCUPATION	BIRTHS AND MISCARRIAGES	PATHOLOGY	DATE OF OPERATION	CONVALESCENCE	ADDITIONAL OPERATIONS AT SAME TIME	LATE RESULTS	REMARKS
31	25	Housewife	Nul	Mobile retroversion of 2d degree; hyperplasia uteri; pruritus vulvæ and masturbation of long standing	Nov. 17, 1900	Good; no suppuration	Curettage; dilatation of sphincter ani	Pruritus relieved for three months after operation, when it returned around anus; masturbation refrained from till then, when it was again resumed; uterus in good position till May 24, 1901, when she sought other advice, pruritus and masturbation continuing	A masturbator, apparently as the result of the pruritis; married; childless, due to closure of seminal ducts in husband.
32	40	Laundress	4 children	Ruptured perineum of 2d degree; lacerated cervix, bilateral; endometritis; mobile retroversion of 3d degree	Nov. 24, 1900	Good; no suppuration	Perineorrhaphy; trachelorrhaphy; curettage	March 2, 1901. Uterus in normal position; patient lost sight of after this	
33	26	Housewife	2 children	Ruptured perineum of 2d degree; endometritis; mobile retroversion of 2d degree	Dec. 15, 1900	A febrile, but slight suppuration in right ligament	Perineorrhaphy; curettage	March 29, 1901. Uterus in normal position; patient did not return afterwards	

No.	Age	Occupation	History	Diagnosis	Date	Operation	Result	Subsequent history	Remarks
34	28	Housewife	Nul	Endometritis; mobile retroversion of 2d degree	Jan. 4, 1901	Curettage	Good; no suppuration	Feb. 2, 1903. Uterus in normal position; patient has since reported several times that she is perfectly well	Several years previously had been operated on for appendicitis and tubal abscess; had been obliged to wear many sizes of pessaries.
35	46	Housewife	1 child; 1 miscarriage	Ruptured perineum of 2d degree; bilateral lacerated cervix; uterine hyperplasia; mobile retroversion of 3d degree	Jan. 24, 1901	Perineorrhaphy; trachelorrhaphy; curettage	Febrile due to pleurisy; union of wounds perfect	April 21, 1903. Uterus in perfect condition and position	Was practically an invalid before operation, being bedridden most of the time.
36	26	Housewife	Nul	Endometritis retroversion	Feb. 23, 1901	Curettage	Good; no suppuration	April 3, 1903. Uterus in normal position	
37	30	Housewife	3 children	Ruptured perineum of 2d degree; subinvolution	Feb. 25, 1901	Perineorrhaphy; curettage	Good; no suppuration	Jan. 27, 1902. Patient's physician reported by letter that she was well except for a mild menorrhagia; uterus in normal position	At time of operation the dilator made a rent in the cervix so that the finger could be passed into the broad ligament; was a "bleeder;" perineum and uterus oozing blood for a week after operation.
38	29	Housewife	3 children; 2 miscarriages	Ruptured perineum of 2d degree; unilateral laceration of cervix; uterine hyperplasia; mobile retroversion of 3d degree	May 10, 1901	Perineorrhaphy; trachelorrhaphy; curettage	Good; no suppuration	April 9, 1903. Uterus in good position	Had a miscarriage with sepsis in November, 1902, and soon after recovery uterus was inclined to retrovert, but recovered. Ligaments shortened seven or eight inches.
39	29	Nurse	Virgin	Mobile retroversion; prolapsed ovary	June 10, 1901	Curettage	Good; no suppuration	Jan. 3, 1903. Patient's physician reported uterus in perfect position	Prolapsed ovary removed by her physician six months after ligament operation.

NO.	AGE	OCCUPATION	BIRTHS AND MISCARRIAGES	PATHOLOGY	DATE OF OPERATION	CONVALESCENCE	ADDITIONAL OPERATIONS AT SAME TIME	LATE RESULTS	REMARKS
40	27	House-maid	Virgin	Endometritis; mobile retroversion of 2d degree	Jan. 9, 1901	Good; no suppuration	Curettage	Feb. 3, 1902. Uterus in good position	
41	41	Housewife	2 children, 2 miscarriages	Ruptured perineum of 2d degree; rectocele; lacerated cervix (bilat.); endometritis; mobile retroversion 3d degree	Oct. 14, 1901	Good; no suppuration	Perineorrhaphy, trachelorrhaphy; curettage	April 11, 1902. Uterus in normal position	Had worn many pessaries.
42	34	Housewife	1 child	Ruptured sphincter ani (incomplete) result of previous perineorrhaphy; mobile retroversion of 3d degree	Oct. 27, 1901	Good; no suppuration	Perineorrhaphy	December, 1902. Uterus in normal position and all symptoms relieved	Left ligament only shortened; right very fragile and would not run through internal ring.
43	26	Housewife	Nul	Appendicitis; mobile retroversion of 2d degree	Nov. 7, 1901	Slight suppuration in right ligament.	Appendectomy; curettage	Not seen since leaving hospital; family physician reports uterus is in normal position May, 1902	
44	28	Housewife	2 children	Ruptured perineum of 2d degree; lacerated cervix (bil); endometritis	Nov. 16, 1901	Febrile; streptococcic infec'n of both ligaments; other parts healed by 1st intention	Perineorrhaphy; trachelorrhaphy; curettage	Sept. 14, 1903. Uterus in perfect position and condition	Remarkable that the streptococcic infection did not interfere with the good result of ligament operations.
45	33	Housewife	1 child	Ruptured perineum of 2d degree; lacerated cervix; mobile retroversion of 3d degree	Jan. 13, 1902	Good; no suppuration	Perineorrhaphy, trachelorrhaphy; curettage	May 2, 1903. Uterus in good position	

No.	Age	Occupation	Children	Date	Diagnosis	Result	Operation	Follow-up	Remarks
46	38	Housewife	2 children; miscarriage	Jan. 30, 1902	Ruptured perineum of 2d degree; unilat. lacerated cervix; endometritis; mobile retroversion of 3d degree	Slight suppuration in right side	Perineorrhaphy; trachelorrhaphy; curettage	Sept. 19, 1903. Dr. Huson reports uterus in normal position	Patient of Dr. Florence Huson, who performed the additional operations.
47	29	Housewife	Nul	Feb. 5, 1902	Endometritis, mobile retroversion of 3d degree	Slight suppuration 3 weeks afterwards	Curettage	July 1, 1902. Uterus in normal position	
48	37	Housewife	3 children	Feb. 29, 1902	Ruptured perineum of 2d degree; lacerated cervix (bilat.); endometritis	Slight suppuration in right side	Perineorrhaphy; trachelorrhaphy; curettage	Sept. 25, 1902. Uterus in normal position	
49	36	Laundress	3 children	March 22, 1902	Ruptured perineum of 2d degree; bilateral laceration of cervix; mobile retroversion of uterus of 3d degree	Slight suppuration in left ligament	Perineorrhaphy; trachelorrhaphy; curettage	May 3, 1903. Uterus in normal position	
50	37	Housewife	5 children	April 16, 1902	Ruptured perineum of 2d degree; unilateral lacerated cervix; mobile retroversion of uterus of 3d degree	Good; no suppuration	Perineorrhaphy; trachelorrhaphy; curettage	Sept. 13, 1902. Uterus in normal position; later reports from her physician are to the same effect	Began to use gloves with this case.
51	28	Housewife	3 children; 1 miscarriage	May 10, 1902	Ruptured perineum of 2d degree; endometritis	Good; no suppuration	Perineorrhaphy; curettage	Confined by Dr. H. W. Yates, who reports, Sept. 18, 1903, uterus in normal position	
52	46	Hard-working woman	5 children	Oct. 4, 1902	Ruptured perineum of 2d degree; bi-lateral lacerated cervix with cicatricial hypertrophy of anterior ligs.; retroversion and complete procidentia; severe pruritus	Good; no suppuration	Perineorrhaphy; trachelorrhaphy and amputation of anterior lip of cervix; curettage	Feb. 19, 1903. Uterus in normal position, though patient is working hard and has had a severe cough for two weeks. Sept. 18, 1903. Uterus still in normal position	Round ligaments very thick and strong; uterus had been outside for about a year.

NO.	AGE	OCCUPATION	BIRTHS AND MISCARRIAGES	PATHOLOGY	DATE OF OPERATION	CONVALESCENCE	ADDITIONAL OPERATIONS AT SAME TIME	LATE RESULTS	REMARKS
53	20	Factory girl	Virgin	Prolapse of both ovaries (normal); mobile retroversion of 2d degree	Oct. 29, 1902	Good; no suppuration	Curettage	Jan. 25, 1903. Uterus in normal position; ovaries still prolapsed and somewhat irritable	Left ligament only shortened; right not found.
54	24	Housewife	Virgin	Endometritis; retroversion of 2d degree	May 24, 1903	Good; no suppuration	Curettage	Sept. 15, 1903. Uterus in good position	
55	28	Housewife	1 child	Ruptured perineum of 1st degree; bilateral lacerated cervix; prolapse of ovaries, retroversion of 2d degree	April 22, 1903	Good; no suppuration	Perineorrhaphy; trachelorrhaphy; curettage	June 12, 1903. Result apparently ideal; patient left city	
56	28	Teacher	Virgin	Adhesions of prepuce of clitoris; retroversion of 3d degree	April 25, 1903	Febrile; suppuration left ligament	Curettage; freeing of prepuce of clitoris	July 2, 1903. Uterus in good position; not seen since	Rubber gloves of assistant badly torn at beginning of operation.
57	28	Housewife	Nul	Endometritis; mobile retroversion of 2d degree	May 9, 1903	Good; no suppuration	Curettage	July 6, 1903. Uterus in normal position	
58	27	Housewife	1 child; 5 miscarriages	Lacerated cervix (left); endometritis; mobile retroversion of 3d degree	May 26, 1903	Good; no suppuration	Trachelorrhaphy; curettage	July 2, 1903. Uterus in good position; not seen since, but her physician reports result perfect	

in cases in which adhesions may have been previously broken up by abdominal section.

A number of devices have been resorted to for the purpose of catching the ligaments and suturing them through the abdominal incision and thus avoiding the making of the secondary operations in the groins, but they cannot expect to equal the method which leaves the shortened ligament in exactly its normal position.

Dr. Noble is the most recent aspirant to fame in this direction, and his method of picking up the ligament at the end of a crosscut in the abdominal wall seems rather good, as it nears the ideal method. By only making the ends of his cross-cut and using the blunt hook he would about have the method described in this paper.

The following tabulated record shows the results of this operation in the hands of the writer up to date:

Total number of cases, 58.

Cases in which late examination has shown uterus to be in normal position, 48.

Cases which showed uterus in normal position two to five months after operation and were then lost sight of, 6.

Partial failure, 1.

Complete failure, 2.

Uterus held in normal position when but one ligament was shortened (total number of such cases), 3.

Failure to find either ligament, 1.

Failure to find more than one ligament, 1.

Confinement after operation and uterus remaining normal afterwards (total number of confinements), 3.

Uterus retroverting late after operation, caused by new adhesions and relieved by breaking up adhesions through abdominal incision, 1.

The total additional operations performed at the same time as the Alexander operation were as follows:

Perineorrhaphy, 24; trachelorrhaphy, 20; curettage, 53; abdominal section, 3; operation on hemorrhoids, 3; freeing of prepuce of clitoris, 2; amputation of cervix, 1; posterior colporrhaphy, 1; cautery of caruncles, 1.

The interior of the uterus is examined with the curette in all cases that have not been previously, at a recent date, curetted, Occasionally a curettage is not necessary, but usually the uterus which has remained in retroversion for some time will be found to contain more or less degenerated mucosa.

The one case of failure to find both ligaments was one of sub-involution and the tissues composing the abdominal wall were so flabby and relaxed that all landmarks were distorted. The aponeurosis of the external oblique was so loose and flabby, that it could be drawn up through the incision like a piece of wet linen. Later operation was intended but examination then showed the uterus to have righted itself with the progress of involution.

Before the writer acquired the habit of wearing gloves in this operation, several cases of suppuration occurred, and it is remarkable that but one of them seemed to influence the good result of the operation.

Case 52 was one of complete prolapse, and thus far appears to be a complete cure. The additional plastic operations no doubt contributed largely to the result, but these alone would not have sufficed without the anterior restraining force on the fundus to throw the axis of the uterus across that of the outlet of the vagina.

Case 30, the one in which the uterus retroverted late because of new adhesions, is of interest because it shows the lasting effects of the shortening of the ligaments, they being found to perform their office perfectly as soon as the adhesions were broken up, and they still continue to hold the uterus in anteversion.

Case 4, the first one of complete failure, was doubtless the result of a severe suppurative inflammation, which continued for over two weeks after the operation, during which time the ligaments probably slipped back to their original position. The infection was the result of much handling of the patient incident to collapse from anæsthesia.

The second complete failure, Case 29, was badly selected, as some adhesions were recognized to be present previous to operation, but the patient having an organic heart affection, and consequently fearing an abdominal operation, I was prevailed on to try shortening the ligaments after a preliminary course of treatment.

The case of partial failure, No. 28, was also caused by adhesions, and should have had a section previous to the Alexander operation.

A large number of these cases were old patients that I had known and treated for years before operation, many of them having been under my care while I was practicing general medicine, so that I have been able to observe them more closely than is usually possible in the ordinary clinical cases. The relief from the symptoms caused by the displacement, and—often of equal grati-

fication to the patient—the freedom from the presence of the annoying pessary, have been exceedingly gratifying to both patients and surgeon.

271 WOODWARD AVENUE.

DR. EDWARD J. ILL, of Newark, N. J., had done the operation twelve or fifteen times, but difficulty had arisen afterwards. While the patients had remained well, so far as the retrodisplaced uterus was concerned, a painful scar was a notable factor. There was pain at the round ligaments in patients who were not stout. He had written Dr. Longyear about this, and tried to follow his suggestions in regard to the painful round ligament, and he would like to know what explanation the essayist had to offer.

DR. ALBERT GOLDSPOHN, of Chicago, had done about one hundred of the simple Alexander operations, and proceeded upon the plan of not opening the peritoneal cavity most of the time, although sometimes it was opened before he became familiar with a more thorough method, and in the last ten years or so he had operated about two hundred times.

The objections to the simple Alexander operation were that it was not thorough; that it did not fulfill all the indications; it left the operator blind to the end of his operation in regard to the exact condition before the operation, and the condition after he got through with it. If one had operated twenty-five years ago, when the dangers of sepsis were greater than now, then these things would be sufficiently important to rule one out from opening the peritoneal cavity. However, the opening of the peritoneal cavity in these days was as innocent as making a hernial wound. One could just as well do it as not.

DR. D. TOD GILLIAM, of Columbus, Ohio, said that some years ago he went to see Dr. Kellogg operate and to have him demonstrate the operation to him. After seeing it, he thought it was one of the prettiest operations he had ever observed. He went home and began to use the Kellogg operation in cases of retroversion of the uterus. He had some difficulty in finding the ligament. Sometimes he failed to find it either on one side or the other. He wrote Dr. Kellogg, and received a letter from him stating that he must not be discouraged in not finding the ligament, as it took him (Kellogg) two years to find it. It was a difficult operation for a man who was not schooled in it. After a man had become schooled in it, it was easy. A very intelligent woman consulted him. Dr. Kellogg wanted to shorten the round ligaments of this woman by the Kellogg method. He made a vaginal examination and could not discover anything special. An abdominal section was made, and old adherent tubes and ovaries were found. The uterus could be tipped forward by lifting up the cul-de-sac. It was one of the most difficult operations he had ever had to relieve the tubes and ovaries. In a number of instances in which he had done his own operation for simple as well as complicated cases, he had en-

countered complications that he did not suspect at the time, and in a number of cases there was tuberculosis, very little was gained by not opening the abdominal cavity. Before the days of antisepsis it was a question as to whether this should be done or not, but since the advent of antisepsis and asepsis there was no greater danger in opening the abdominal cavity than there was in pulling out the ligaments and tearing the peritoneum through the two openings made in this operation. To any one who was schooled in the Kellogg method, when there were no internal complications, he should say, let him do it, but to every one who was not satisfied that there were no internal complications, and who was not schooled in this operation, let him enter the peritoneal cavity and see what he had to deal with.

Dr. Lewis S. McMurtry, of Louisville, Ky., thought that the essayist was in danger of being misunderstood largely on account of the title of his paper. It would be found that in very few of the cases reported was the Alexander operation, pure and simple, done. A large number of cases had other operations performed on them coincidentally with the Alexander operation. For example, in a number of cases the essayist did a perineorrhaphy. In most of them he did curettage. In others he did a trachelorrhaphy. In some he performed abdominal section conjointly with this operation.

The investigations of the essayist had been very carefully made, and he had followed up the subject from year to year. He thought the essayist would, in closing the discussion, tell the members that his estimate of the operation *per se* was much less now than it was in 1899, when an exhaustive paper was read on the subject.

Early in the speaker's experience he did a number of these operations, and observation of the cases persuaded him that the operation was of very little value in itself. As Dr. Goldspohn had said, if it was necessary to do anything to the case, it added very little more danger to open the peritoneal cavity and know just exactly the cause of the displacement of the uterus, and there was very little more peril to the patient by so doing, and the amount of knowledge derived therefrom was much enhanced. In a virgin there was often found a simple dislocation of the uterus without adhesions and without apparently any pathological condition in the uterus itself that one could see. Undoubtedly this was true. But when one left the virginal state, there were very few women in his judgment in whom a displacement of the uterus was a simple thing. In almost every instance there was a pathological condition of the uterus itself, or of the uterine appendages, and the mere correction of the displacement of the uterus was but a small part of what was necessary to be done by the surgeon, and he thought that the scope of the Alexander operation was very much less than it was generally reported to be. True, the operation had been greatly abused, but that did not obtain in this presence. It was easy of performance; it did not open the abdomen, and it could be done under perfect asepsis, so that it was naturally the

resort of surgeons who did not dare to open the peritoneal cavity. He thought Dr. Longyear, in his closing remarks, would concede that the number of cases to which he could apply this operation alone, with the view of effecting the cure of patients, was very few.

Dr. Longyear, in closing the discussion, and in replying to Dr. Ill, said that in his tabulated report there were two or three cases in which the symptom referred to by Dr. Ill was mentioned.   It did occur, and it was usually caused by some slight adhesion that had not been discovered.   This was his explanation of it.

Dr. Ill said sometimes the pain was produced by the clothing of the patient pressing on the scar.

Dr. Longyear (resuming) said, in that event, it must be due to the formation of scar tissue.   He had seen an abdominal wound where a slight keloid formation took place and it was tender to the touch.   Why this should continue he did not know, but it would continue as long as there was any exudate around the ligaments. It sometimes occurred.   One could readily feel a bridge there for some time, but it passed off sooner or later and after that there was no tenderness.

He said that Dr. Goldspohn had referred to the necessity of entering the peritoneal cavity in some cases, as one could not determine otherwise the condition inside.   If one could not make a diagnosis without entering the abdomen, then the peritoneal cavity should be opened, but he did not think it was always necessary to do this.

As to whether one tore the peritoneum or not in stripping out the ligament, he thought it was largely problematical.   He did not think Dr. Goldspohn had ever discovered he entered the peritoneal cavity that way.   If he did so, he must have made a much more extensive dissection than was necessary.

He was glad that Dr. McMurtry referred to the additional operations that were made in connection with the Alexander operation, and he agreed with Dr. McMurtry in the main with reference to these additional operations, as they were almost always necessary to effect a complete cure.   At the same time, Dr. Goldspohn likewise shortened the ligaments and did other things through the inguinal opening, and so with this operation one should do everything else that was necessary to put the woman in a healthy condition, so that her organs would be in the proper position.   Some of these additional operations were essential in almost all cases of women who had borne children.   He looked upon the shortening of the round ligaments as the keystone to the arch of operative work.   If one did not do what was required in these cases, besides the Alexander operation, he would not effect a cure.   By adding the round ligament operation to the other plastic measures necessary, a complete cure was effected.

Dr. X. O. WERDER, of Pittsburg, Pa., showed a

MASS OF WOOD FIBERS REMOVED FROM THE STOMACH

by gastrotomy. On section, the entire mass was found to consist of wood fibers of different sizes and lengths, partially softened

Foreign body from stomach. Front view.
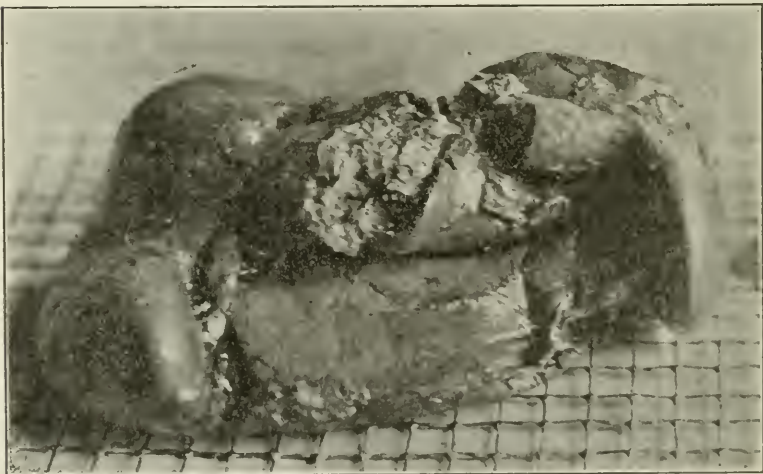
Torsion of spleen.

by mastication. Most of the fibers were in bundles, the size of a pin, and about half an inch long. In addition, there was some granular debris, with a few epithelial (disintegrated) cells and altered starch granules. As an explanation of the presence of this unique tumor in the stomach, it was learned that in her earlier days she had been an inveterate chewer, and that she was in the
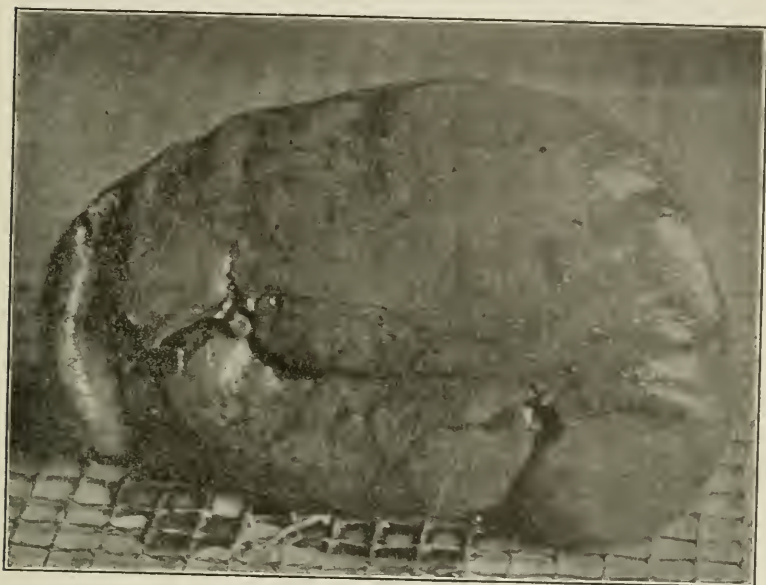
Torsion of spleen.   Top view.

habit of chewing large quantities of licorice root. The patient made an excellent recovery, and was much improved in health.

DISPLACED SPLEEN.

The second specimen was a displaced spleen which had given rise to intestinal obstruction. The spleen weighed 12½ pounds, and measured transversely 8½ inches, 4½ inches thick, and 5½ inches vertical measurement. Whether the intestinal obstruction was due to the adhesions and compression of the lumen of the colon engaged in the fissure, or to a twist or kink farther up, could not be learned, as the patient's condition did not permit of a more careful investigation of the abdominal cavity at the time of the operation.

TUBAL PREGNANCY.

DR. JAMES F. BALDWIN, of Columbus, Ohio, reported a case of tubal pregnancy, with primary rupture after four and one-half months' gestation. The history of the case was narrated in de-

tail. The patient recovered. Examination of the specimen showed it to be not less than four and one-half months gestation.

Four and one-half months' tubal gestation. Note caput succedaneum.

The head of the fetus, which had plugged the opening in the tube, showed a distinct *caput succedaneum*. It was this plugging of the rent which doubtless prevented severe hemorrhage.

GALL-STONES.

He showed some gall-stones which were removed from a woman, 59 years old. The operation was performed for the removal of an ovarian cyst, estimated to weigh about 60 pounds. At the operation, after removing the cyst, the uterus was found

retroverted, with a fibroid in its anterior wall. The fibroid was removed and the uterus suspended. The gall-stones were then
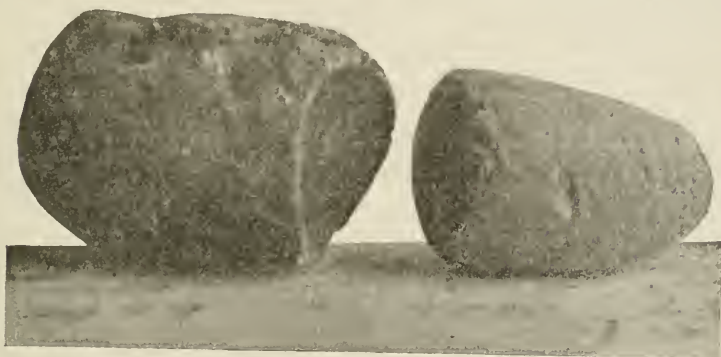
Enormous gall-stones. Exact size.

found and removed through a separate incision. The patient made an uneventful recovery. The sizes of the stones are exactly

Enormous gall-stone. Exact size.

as shown in the cuts. Their weights were respectively three drams, five drams, and ten drams.

INTESTINE SHOWING PERFORATIONS.

Dr. John Young Brown, of St. Louis, Mo., showed a specimen which was removed post mortem. The patient was admitted to the hospital suffering from a gunshot wound of the abdomen. On section, fourteen perforations were found. Six inches of bowel were resected and anastomosis made with Murphy button. Lower down three feet of small bowel were resected, the anastomosis being made with Connell suture. The Murphy button passed on the nineteenth day. The patient died from hemorrhage from the lung twenty-three days after operation. The special point of interest in the case was the fact that the Murphy button readily passed the Connell suture. The contrast in the union by Murphy button and that by the Connell suture was marked. He believed that in gunshot work the Murphy button was the ideal method of approximating the bowel. In these cases time was a factor. There

might be men who could put in a Connell suture as rapidly as they could a Murphy button, but he could not do it. The specimen spoke for itself.

A case similar to this one had been reported by Dr. Louis Rassieur, formerly his first assistant.

LARGE FALLOPIAN TUBES.

Dr. C. C. Frederick, of Buffalo, N. Y., showed two tubes that he had removed from a patient who had tubercular peritonitis. He had not opened the tubes. The left tube, before it had contracted by being put in formalin solution, was ten and one-half inches long and nine and one-half inches in circumference, while the right tube was eight and one-half inches long and seven and one-half inches in circumference, at the widest point. They were non-adherent. The whole peritoneum was in a state of tubercular peritonitis with beginning infection. The patient was well. These were the largest tubes he had ever seen.

Dr. W. D. Haggard, of Nashville, Tenn., read a paper entitled

STUDY OF THE SYMPTOMS AND SURGICAL TREATMENT OF INTESTINAL PERFORATION IN TYPHOID FEVER.[1]

Dr. John B. Murphy, of Chicago, congratulated the essayist, *first,* on his collection of cases; *second,* on the care of his analysis of the cases; third, on the emphasis which he placed upon the importance of early operative intervention when symptoms of peritonitis were present, not when perforation took place. He had operated on two cases of peritonitis with typhoid without perforation. Both recovered. It was legitimate, from a pathological standpoint, to have peritonitis from a typhoid ulcer just penetrating, but not perforating, by infecting the wall of the intestine. When the epithelial lining or covering of the mucosa was diseased, there was sepsis, and we had a direct means of transmission of infection through the wall of the intestine, where it had been deprived of its protectors. In the two cases referred to he could see the position at which the infection occurred. There was an increased deposit of exudate in the neighborhood, but no perforation in either of the cases, although infection occurred from the ulceration.

The symptoms which the essayist laid so much stress on—sudden onset of pain, local sensitiveness to pressure, nausea or vomiting (which was the reflex nausea and vomiting of peritonitis) were important.

He congratulated the essayist on the emphasis which he placed upon the absence of manifestation of collapse. It had been ground into the profession so long and persistently and so forcibly that collapse was a manifestation of perforation, that it was difficult for the general practitioner and the surgeon to discard that idea. Collapse was a manifestation of absorption of the products of infec-

[1] Will appear in a succeeding number of the JOURNAL.

tion, and not of perforation itself. Collapse was a late symptom. In this connection, the word *late* might mean a few hours, twenty-four hours, forty-eight or even seventy-two hours, depending upon the virulence of the type of infection that took place.

An important point in connection with the treatment was not to do too much surgery. The surgeon should endeavor to open the abdomen quickly and get through quickly. The intestines should not be tampered with. One should recognize the fact that the infection had paralyzed the intestines to a greater or less degree. If the intestines were elevated, the fluid had a tendency to settle in the most dependent position. If the patient was in the Fowler position, the fluid would drain without being washed out. If there was severe tympany, there was the greatest danger. Tympany meant infective material retained in the cavity which might not settle in one place. It was retained under pressure, and pressure was the important element. It was necessary to do everything possible to relieve intestinal tension or tympany.

DR. ROBERT T. MORRIS, of New York, said, in view of Dr. Haggard's presentation of the subject, it seemed to him that the general practitioner must still further feel impelled to call a surgeon to his aid in almost any case of typhoid fever, not necessarily for operation, but for consultation. It was a wise precaution for his patients. One should be prepared for complications that accompanied perforation, but in a larger view of the subject one should include the point made by Dr. Murphy, that a simple peritonitis from extension of infection should be relieved by opening the abdomen and draining.

An important point that had not been discussed was hemorrhage. Hemorrhage was dangerous in typhoid cases. It had not received the attention that it deserved. He predicted that hemorrhage as a complication of typhoid would be treated surgically within the next decade. Perforation, peritonitis without perforation, and hemorrhage were the three factors that caused death in such a proportion of cases, and were so well managed by surgeons, that the physician should call a surgeon or be prepared to subsidize him in almost any case of typhoid fever.

DR. WILLIS G. MACDONALD, of Albany, N. Y., said he was very much impressed a year or two since with a description given by Dr. Osler of factors connected with perforation of the intestine as associated with typhoid fever. The factors of perforation nowadays were seldom, if ever, associated with distinctive shock, and the classical description presented in text-books of perforation in typhoid fever was not a description of perforation at all, but a fine description of impending death.

In regard to the technique associated with operative intervention in typhoid fever, it seemed to him that the surgeon was fortunate in not having a great supply of sterile water at hand, as it relieved him of the temptation of doing too much surgery in the serious cases, when to get in quickly and get out as quickly was associated with the most definite success in the way of saving life.

Within the last two years he had in the severer attacks of peritonitis, where the patient had already shown distinctive evidences of serious shock to the system, and where he had the indications in the pulse which told one that twenty minutes after anesthesia he was going to have a patient in a serious condition, instead of employing normal salt solution as a preventive, he had rather withheld general anesthesia and used a mixture of morphine, cocaine and adrenalin, and he had been able in nearly every case to open the abdomen comfortably. He had also found that so long as he did not pull too much on the intestine, he had very little difficulty in operating. In a number of cases he had been able to do laparotomies, to cure a cholecysitis, pack off the gall-bladder, pull it into the wound and fix it without giving the patient much pain under purely local anesthesia. On one occasion he was compelled to close five perforations of the intestine made by a revolver without general anesthesia, and in which he left the abdomen open. In some of these cases one could get a good way on in his operation for typhoid perforation by local anesthesia, and save the patient the shock of a general anesthetic, which he regarded as an important factor in this surgical work. He thought this important factor was appreciated by everyone who was operating under the conditions described by the essayist, where the anesthetist was not always an expert.

DR. HAGGARD, in closing the discussion, said he wished to express his appreciation of the generous discussion that had been accorded his paper. He requested the members to report additional cases, in order that they might be added to the list and bring the subject up to date.

IN MEMORIAM.

WILLIAM E. B. DAVIS, M.D.

BY

L. S. McMURTRY, M.D.,
Louisville, Ky.

THE Fellows of this Society compose a band of busy workers, joined together by similarity of experience, common ambitions, congeniality of taste and earnestness of purpose. Limited in numbers, our annual reunions increase the bonds of personal attachment and mutual esteem. The element of sadness only intrudes itself when the annual roll-call shows that some familiar face is missing. Indeed, our assembling together after the lapse of a year is not unlike that of a regiment after battle.

One year ago to-day Dr. William E. B. Davis, an honored Fel-

low and ex-president, met with us in perfect health and vigor, in the prime of early manhood, and, with characteristically active body and restless mind, participated in the proceedings through-

WM. ELIAS BROWNLEE DAVIS, M.D.
Born November 25, 1863. Died February 24, 1903.

out the entire meeting. No man enjoyed a more honorable career; no one had brighter prospects for years of useful and enjoyable service. Much earlier than is customary in our profession, he had attained the fruition of his hopes; he was a recog-

nized leader in scientific accomplishment; enjoyed the respect of his professional brethren in a remarkable degree, and possessed a large and devoted *clientèle*. He lacked at the time of his death eight months before reaching the age of forty years. His ability, his energy, his incessant activity, his enthusiasm and capacity for concentration of thought and labor had placed him in the line of demonstrated success and authority at an age when the members of our guild are usually only beginning to receive merited recognition. He was spared the distress and suffering of protracted illness, and was killed instantly by accident at a railway crossing in the city of his home, on February 24, 1903. In the twinkling of an eye his life went out, his restless brain ceased its function, his generous heart was stilled, and his busy hands were folded for the long rest..

William Elias Brownlee Davis was born at Trussville, Jefferson County, Alabama, November 25, 1863. Both his father and grandfather were physicians of good attainments and excellent repute. His academic education was acquired at the University of Alabama, and after attending medical colleges in Louisville and New York, he received his degree from the Bellevue Hospital Medical College in 1884. He at once entered upon the practice of his profession in partnership with his brother, Dr. John D. S. Davis, and continued that relationship until his death.

A few years after receiving the doctorate degree he made a visit to Europe and carefully observed the methods of study and practice in the medical centers of Great Britain and the continent. Upon his return home he threw all his energies with characteristic enthusiasm into his professional work. It was a time of great activity and marvelous changes in surgery. The epoch-making discoveries of Lister, the brilliant surgical achievements of Lawson Tait, were making a revolution in surgery and advancing its possibilities beyond the expectations of all former times. Dr. Davis was deeply imbued with the scientific spirit and actively set himself to work with a view of mastering the new surgery and to carry forward still further the great acquisitions of modern masters in surgical science and art. Without private fortune, he won his living by daily work as a practitioner, and devoted himself also to close study and experimental investigation. He was especially attracted to the field of gynecology and abdominal surgery, and after a few years of practice in general medicine and surgery devoted himself exclusively to gynecology and abdominal surgery. An indefatigable student, possessed of excellent judg-

ment and discrimination, he applied the test of practical experience to all new methods and was quick to adopt the true and eliminate error. He made numerous important contibutions to surgical literature, and contributed valuable knowledge to the surgical treatment of intestinal lesions and hepatic diseases as a result of experiments upon the lower animals, which he carried on for several years in conjunction with his brother. He mastered the intricate technique of gynecology and abdominal surgery, and soon became one of the most successful operators in his section of the United States. He combined in a remarkable degree the knowledge of the scientific student and clinician. He was aggressive in his surgical work, but was governed at all times by that sound and deliberate judgment which guarantees conservatism. As a practitioner he was eminently equipped for popularity and success. He had no studied manner and indulged in no subterfuge or pretense; his bearing was straightforward, sincere, and earnest, winning at all times the confidence and appreciation of those who entrusted themselves to his care. No one capable of appreciating him could be thrown with him without realizing his honorable nature and generous unselfish disposition. He loved his work and gave all his time to it. He was in every sense of the word a self-made man. He acquired no position or advantage by accident, but everything he had was gained by hard work. He was eminently practical, and his views on scientific subjects were always thorough, lucid and conservative. He was self-reliant, and had, with the aid of his brother, acquired the knowledge of an original investigator and expert clinician far away from the medical societies and hospitals of the great medical centers of our country.

Graduating in 1884, Dr. Davis became a member of this Society in 1889. His first contribution to our Transactions was made in 1890, when he took an active part in the discussions He contributed a valuable paper to the Toronto meeting entitled, "Restoration of Intestinal Continuity without Mechanical Devices." At the meeting in 1900 he was elected President of the Association and presided over the meeting at Cleveland. He was for several years a member of the Council, and was at all times prompt in attendance and active in the interests of the Association.

Soon after being admitted to practice in Birmingham, he realized the great necessity for a purely scientific organization for the advancement of surgery and gynecology in that section

of the United States. There were no organizations devoted to surgery and gynecology especially to which the profession of that section had access. The special societies of national scope held their meetings exclusively in the East, and Dr. Davis realized the necessity for a local society which would attract leading members of the profession and afford them facilities for keeping up with the rapid advances in modern surgery and gynecology. With this purpose in view, he organized in his office the Surgical and Gynecological Society of Alabama. His enthusiasm was not encouraged by the profession of his state, and he then conceived the purpose of going beyond the confines of his own state and establishing the Southern Surgical and Gynecological Association. The achievements of this organization will remain a lasting monument to the energy, self-sacrifice, and masterful ability of its founder and secretary. He served as secretary of this organization continuously without compensation until two years ago, when he resigned that office and was by acclamation elected its President. The members of this Association responded to the call of their worthy and popular colleague, and lent their powerful aid in the work of this organization. Meeting in the large cities of the Southern states, papers of the highest scientific value were annually presented and discussed by men from all sections of this country. In this way many younger men in the South were brought forward and stimulated to new and ever increasing endeavor. It is a high tribute to the founder and active executive officer, our deceased friend, that the Society attained such efficiency and renown, and the volumes of its Transactions will ever remain a splendid monument to his memory.

Dr. Davis was one of the organizers of the Birmingham Medical College and filled with eminent success the chair of Gynecology and Abdominal Surgery in that institution. In conjunction with his brother, he founded and conducted a large private surgical infirmary, where he did the greater part of his surgical work. He was on the staff of other hospitals in Birmingham, but was the active head of this infirmary to which he devoted the most earnest labor and constant solicitude.

In conjunction with his brother, he founded and edited the *Alabama Medical Journal*, which remains, under the editorial management of Dr. LeGrande, one of the leading exponents of our profession in the Southern states.

Dr. Davis was the recipient of notable honors from his professional brethren in all parts of the United States. He was an

honorary member of the Medical Society of the State of New York; an Honorary President of the Section of Gynecology and Abdominal Surgery of the first Pan-American Medical Congress in 1893, and one of the Vice-Presidents of the Second Pan-American Medical Congress in 1896. He was President of the Tri-State Medical Association of Alabama, Georgia, and Tennessee in 1891.

The limits of this article will not permit an enumeration of all his contributions to medical literature, which were numerous and valuable. He was constantly studying new methods and striving to work out complicated problems in surgical pathology and technique. His most noteworthy contributions relate to the surgery of the liver, gall-bladder and ducts.

His life was very busy, and to his profession he gave all his time and energies. In his daily life he was temperate in habit, polite in manners, and chaste in conversation. He had a high moral character, which inspired and controlled his daily life. He was a devoted son and thoroughly gentle, kind and unselfish in all his relations in life.

Dr. Davis was married in August, 1897, and came with his charming bride to the meeting of this Society held that year at Niagara Falls. The surviving relatives are the widow and two lovely little girls, and his brother already alluded to in this article, who has been throughout both a devoted brother and constant professional associate.

In this brief and imperfect sketch I have endeavored to record an outline of the character of an earnest, honest, able and intense man, who, dying before the age of forty years, had done the work usually encompassed in a good long life. To those here assembled he was much more than I have described. He was our colleague, our fellow, a leader among us, respected, trusted and beloved He achieved success in many ways. His memory will be revered and cherished in his home by the loved ones there, and his name and fame will remain with the people of the city which was his home in his native state. The statesman and soldier leaves his monument in bronze and stone; the man of wealth in the colossal fortune that perpetuates his name; the author and poet in pages of thought and songs that live; but our distinguished Fellow who has joined the silent majority and whose memory we will cherish and honor, has a thousand monuments in the hearts of those who knew his good offices and appreciated his generous character.

At this juncture, the Second Vice-President, Dr. Hayd, took the chair, and President Dunning delivered his address. He selected for his subject

SOME OF THE DISAPPOINTMENTS OF THE SURGEON.[1]

THE RATIONAL TREATMENT OF POST-PARTUM INFECTIONS OF THE UTERUS.

BY

D. TOD GILLIAM, M.D.,
Columbus, O.

SOME years ago the master obstetrician placed in the hands of the general practitioner the douche tube and curette with instructions to use them freely in all cases of anticipated or suspected infection of the uterine cavity. Of late he has been making strenuous efforts to reclaim them, having recognized his mistake; but the general practitioner having learned their use is loth to part with them, feeling that in so doing he is showing a craven spirit by disarming in the presence of the enemy. He argues thus: "The uterine cavity is the rendezvous of pathogenic germs and the source from which systemic infection is derived, hence it is clearly my duty to clean out the uterine cavity." It is for counteracting such specious sophistry and giving the reasons therefor that this paper is written. I am aware that it is in many respects too elementary for you, but it is submitted through you to those who need it with such emendations as you may choose to offer for the benefit of the childbearing woman. The rational treatment of postpartum infection of the uterus presupposes a knowledge of the infecting agencies, their nature and tendencies and of the conditions which favor or retard their entrance into the general system.

The Bacteria of Puerperal Infection.—The bacteria of puerperal infection are essentially the same as those that take part in other pathologic processes of the genital tract. Chief among these are the streptococcus, gonococcus, colon bacillus and the saprophyte. The saprophyte is a carrion maker, and subsists entirely on dead tissue. It never attacks the living cell, almost never invades the deeper structures of the healthy organism, nor quits its place until its pabulum is exhausted, when it dies of starvation. It is, however, capable of exerting a baneful influence on

the economy through its absorbed secretions—the toxines. When the blood is charged with these products, it constitutes that form of puerperal infection known as sapremia. Saprophytic or putrid infection occurs when fetal debris (fragments of placenta or membranes) have been left in the uterine cavity, or when, as the result of trauma or other cause, the uterine mucosa has become necrotic. It follows, then, that the saprophyte is pernicious only through its products, and that it will cease to do harm so soon as its pabulum—the fetal debris—is exhausted or expelled from the uterine cavity. Both the gonococcus and colon bacillus are surface germs, showing little tendency to penetrate into the depth of tissues or disseminate broadcast through the general system. The streptococcus is the most deadly of germs connected with puerperal infection. In contradistinction to the other germs it may and does proliferate in living tissues. It is aggressive and migratory and seeks the lymph and blood streams for transportation to remote parts. While all of these germs are capable of producing invalidism, there is only one—the streptococcus—that jeopardises life. This assertion is to be taken in a general sense, as other bacteria have on occasion been the causative factors of serious, or even fatal infection.

Differentiation.—It becomes then a matter of much importance to distinguish between streptococcus infection and that of other germs. This can only be done positively by microscopic examination of the lochia. Unfortunately, even this is at times misleading or utterly unavailing. Furthermore, it is not always practicable, especially in the less densely populated districts, hence it becomes necessary to depend on the clinical evidences. It may be stated, as a rule, that putrid infection—and this constitutes the bulk of the cases met with—is characterized by high temperature, slow pulse and foul odor; whereas in streptococcus infection there is no odor in the earlier stages, and the pulse is markedly accelerated, according to the virulence of the infection. At a later stage, there may be foul odor from necrosis of the endometrium. Suppression of the lochia is a fairly constant and early symptom in streptococcus infection. Digital examination of the uterine cavity will also give valuable evidence. In putrid infection the uterine cavity contains debris, whereas in streptococcus infection the mucosa may be perfectly smooth. Putrid infection, or any other form of germ infection may be complicated with streptococcus infection.

Prognosis.—The character of the germ being determined, the

prognosis will follow. "If," says Whitridge Williams, "I find the streptococcus present and the condition serious, I am very much alarmed about it. If the gonococcus is present, I do not bother much about it. If the colon bacillus is present I bother very little about it, and if the ordinary putrefactive organisms are present, I do not bother at all about the case."

Taking the cases in general, statistics gathered on rather a large scale give a normal death rate for puerperal infection of about one in a hundred. In epidemics, which are usually the result of streptococcus infection, this rate is materially and sometimes greatly increased. In streptococcus infection alone, the death rate is about one in twenty or twenty-five; the average of streptococcus cases as compared with others is about one in five, (Pryor) so it will be seen that the chances for life of the puerperally infected woman, if left alone, are about ninety-nine out of a hundred.

Conditions Favoring Infection.—The increased vulnerability of the puerperal uterus is due to the enormous increase of its blood-vessels and lymphatics which afford unparalleled facilities for the distribution of germs. When the pregnant uterus has expelled its contents, it becomes an effete organ and begins to disintegrate. The detritus fills the interstices of its walls, freights the lymphatics, and oozes into the uterine cavity. This together with the clotted plugs of the exposed vessels and sinuses and the residual blood of the cavity afford an excellent culture medium for germs. These germs gain access to the deeper structures through the vessels and lymphatics at the placental site, or other lesion in the uterine mucosa.

Safeguards Against Infection.—With the conditions portrayed above, the wonder is, not that puerperal infection is so frequent, but rather that it is not an unfailing sequence to every childbirth. Happily for womankind and the human race there are counteracting influences which, if properly fostered, will safeguard the mother and render infection even less frequent than at present. The safeguards of which we shall take account are :

1. Auto-sterilization of the genital tract.
2. The epithelial-clad surface of the uterine mucosa.
3. The massing of germicidal leycocytes beneath the epithelium.

With the advent of pregnancy sterilization begins and continues until the genital tract is germ-free and proof against infection, unless germs are introduced from without. The second safeguard is the epithelial-clad surface of the uterine cavity which

covers and protects the lymph spaces and under ordinary conditions offers an effectual barrier to germ invasion. There must also be some condition to oppose germ invasion at the placental site, as in the absence or lesion of other portions of the mucosa systemic infection is comparatively infrequent and less severe. It is not improbable that the open-mouthed vessels are protected by the outflowing tide of blood charged with phagocytes. Possibly the placental site may be clothed with a layer of embryonic epithelium. I infer such to be the case from the known fact that the casting of decidual growths in general is preceded by a new formation beneath it. Instance the shedding of the scarf skin in animals and serpents. If this be so, it goes far toward explaining the situation.

The third safeguard against infection is found in the massing of leucocytes immediately beneath the epithelium and in front of the lymph spaces, which are there to give battle to any germs which may have passed the protective epithelium or have gained access through a breach in the same.

Auto-sterilization of the Genital Tract.—One of the principal agents in effecting the expurgation of the genital tract is the germ of Doederlein which through its acid secretion destroys all harmful organisms, with the possible exception of the gonococcus and the gas-secreting bacillus. The habitat of the germ is in the vagina, especially in its lower portion, where it keeps watch and ward over the introitus. The impropriety of washing out the vagina as a preliminary to labor is made evident when we consider that in so doing we wash away the germ which guards against infection. Exception may be made where there is obvious gonorrheal infection. It follows, then, that the best prophylaxis is absolute noninterference. During labor there should be no more intravaginal manipulation than is absolutely necessary, and this in most cases is almost none. The habit of rummaging in the vagina of the parturient woman as indulged in by the old-time obstetrician is unnecessary and pernicious. It goes without saying, that all manipulations should be conducted under the strictest aseptic regime.

The Protective Epithelium and Leucocytes.—At the expense of repeating myself, I wish to emphasize the fact that germs do not readily pass through the intact epithelium. The colon bacillus never quits the intestinal canal except through the floor of an ulcer. The vaginal epithelium is germ-proof, unless there be an abrasion of the surface or other pathologic change. The gono-

coccus is never found occupying the living cell or intercellular substance of the tubal epithelium. Hence it is highly probable that the streptococcus will not traverse the intact epithelium of the uterine mucosa. But granting that it may, it cannot pass it in droves, and may then usually be met and beaten in detail by the protective leucocytes which are massed behind the epithelium. The toxines may and do pass the epithelium, but so long as the germs themselves are confined within the uterine cavity the toxines almost never, if ever, acquire such concentration in the circulating fluids as to become lethal. If, however, the germs themselves enter the vascular channels and are distributed broadcast throughout the system, the opportunities for surcharging the fluids and tissues with their noxious products are multiplied in proportion to their number and virulence. It must be remembered, however, that the living tissues are germicidal, and, if not overwhelmed, will take care of themselves even in the presence of germs. The presence of streptococci in the blood, therefore, does not necessarily signalize a fatal infection. I would call attention to another fact pertinent to our inquiry, and that is, that germ invasion through an open surface usually takes place within the first few days after the lesion occurs. It is well known that fresh wounds are those from which blood poisoning ensues. After surgical operations, if the patient passes the fourth day without septic manifestations, the surgeon feels quite easy. A granulating sore is proof against infection, if undisturbed. Granulation is usually established by the fifth day. It is more than probable that a similar conservative change takes place in the uterine cavity. Hence it is quite fair to assume that bacterial invasion will not proceed from the uterine cavity after the first few days succeeding confinement. Any systemic disturbance after that period, provided there be no fresh lesion, is caused by the germs already in the blood or by the toxines. If this view be correct, cleansing the uterine cavity many days after confinement can be of little or no avail as a life-saving measure. This does not apply to the minor degrees of intoxication from the toxines, however, for the absorption of toxines goes on uninterruptedly so long as germs inhabit the uterine cavity. But the toxines do not kill, and any measures adopted to get rid of them must be devoid of danger to justify their use. A newly formed lesion of the mucosa produced by the indelicate use of an instrument may open the way for a fresh invasion of deadly germs with a fatal result. That such a result is often brought about by the injudicious use of the

douche and curette, admits of no doubt. As has been seen the normal death rate from puerperal infection is about 1 per cent. It has been found that after curettage this death rate is greatly increased, averaging in a series of cases more than 20 per cent. This is appalling, but it opens our eyes to the inexcusable folly of indiscriminate curettage. To the puerperal woman the man with a curette is more to be feared than shot and shell on the most sanguinary field of battle. I have no hesitation in saying that considering the temper and equipment of the average practitioner, the puerperal woman would fare much better without any local interference whatever.

Impracticability of Disinfecting the Uterus.—If it were practicable to clear the uterine cavity of germs by curettage or flushing, there would be no question of their utility, but such is not the case. Even under the most expert manipulation of the curette the germs will drop off or be washed off and adhere to the raw surface of the uterus. With organisms so small that a host of them may park on the point of a needle, it will be readily seen how impossible it is to effect complete dislodgement by agencies so gross and clumsy as currettage and flushing. But the chief difficulty lies in the bacteria which lie ensconced in the depressions of the uterine mucosa—the utricular glands and the crypts of the cervix. Here they are absolutely inaccessible and beyond the reach of any known agency. The curette, therefore, is clearly inadequate as a means of ridding the uterine cavity of germs. The sharp curette is especially dangerous as it not only fails to remove the germs, but destroys the protective barriers—the epithelium and leucocytes, and leaves an open way into the mouths of the lymphatics. No more effectual way for furthering systemic infection could be devised than by sharp curettage of the uterine cavity in the presence of the streptococcus. As it is impossible to say that the streptococcus is not present before evidences of infection are manifest, or that it is not associated with other germs after the same, the only safe way is to eschew the sharp curette entirely in postpartum cases.

When Curettage is Permissible.—There yet remains the question of invalidism. Putrid infection entails a greater or less degree of invalidism, and as it ceases immediately on the removal of the fetal debris, it were better to do so, provided it can be done with comparative safety. With every precaution against carrying infection, the uterine cavity should be explored by the finger and, if practicable, emptied by it. If curettage is required, the

dull curette should be selected that the decidua may be removed without breach of the epithelial-clad surface. More accurate and delicate work can be done with the stiff-handled instrument, as the operator has better control of it. A large curette should be used for advanced pregnancy. A sharp instrument will shave and either cut through placental tissue, thus leaving a residue, or going deeper denude the uterine wall, leaving a raw, bleeding surface.

Flushing.—The objection to flushing lies not so much in the act as in the manner in which it is done. Some years ago the New York Academy of Medicine, after prolonged consideration, promulgated the doctrine that in cases of puerperal infection the uterus should receive one good flushing after which there should be no repetition. For the skilful and careful manipulator, I think the rule is too stringent, for the careless and untutored it is too lax; that one flushing, if improperly executed, may prove the undoing of the patient. It is an easy matter to carry germs into the uterine cavity on a douche tube in the hands of a careless operator, and just as easy to inflict injury upon the uterine wall by a clumsy one. While inveighing against the use of the douche as a routine practice, I am not averse to its use in competent hands at any stage of postpartum infection of the uterus.

How Flushing Should be Conducted.—I quote from Wetherell: "The patient should be gently lifted out of bed on a table in good light. The vulva and vagina are gently, but thoroughly, cleansed with soap, water, alcohol and a 2-per-cent. carbolic solution (I prefer a solution of 5 per cent. creoline in liquid green soap for the vagina). The vagina is mopped and dried and a retractor introduced. The cervix is grasped with a volsellum forceps and gently drawn down and steadied. The cervical canal is wiped out with gauze and any bits of membrane or fetal residue picked out with forceps. The uterine cavity may be gently irrigated with salt solution, or even wiped out with pure carbolic acid, if the surface be covered with diphtheritic or streptococcic membrane, and then gently dried with a strip of gauze." I would add that the douche tube—preferably a large size, soft rubber catheter—should be introduced under the eye and with the greatest gentleness. The irrigating fluid may be of plain water, the normal salt solution, or any of the nontoxic, antiseptic solutions. Of the latter the salt solution, collargalum or other allotropic silver solution and hydrogen dioxide are prime favorites. The douche may be repeated daily, or at shorter intervals, ac-

cording to the effect on the patient. If the pulse and temperature drop, the douche is doing good, and should be repeated on the first indication of recurrence, or the recrudescence may be anticipated after a little experience with the case. If no abatement of symptoms follows, the flushing were better discontinued.

Instillation of Alcohol into the Uterine Cavity.—In the year 1897 Dr. Edward J. Ill, of Newark, N. J., called the attention of this Association to the intrauterine instillation of alcohol in puerperal infection. His modification of Carossa's method is as follows: "Introduce a small size, soft rubber stomach-tube, with funnel attachment of length used for lavage of the stomach. Near funnel end there should be a clamp screw. The uterus and vagina are loosely, but completely, filled with iodoform gauze. Now, pour into the funnel about ℥ii of 25-per-cent. solution of 95 per cent. alcohol in water, and by gradually opening the clamp allow the fluid to enter tube. When last of the solution reaches the clamp, it should be closed. This keeps the tube full and prevents entrance of air at subsequent fillings. This should be repeated every two hours. The gauze is changed at intervals of from three to six days. The treatment lasts from four to twelve days. The tube and packing should be introduced under the eye and with the same care and precautions as in flushing. Again and again, I would repeat, and vehemently insist, that manual or instrumental interference with the uterine cavity of any kind, if not properly done, were far better left undone.

70 Winner Avenue.

Dr. H. W. Longyear, of Detroit, Mich., agreed most heartily with the deductions of the essayist, especially with reference to manipulation of the uterus in cases of puerperal infection. One should endeavor, by every possible means, to make a bacteriological diagnosis. This was the pith of the whole matter. If one could, by a microscopical examination, get at the exact cause of the infection, half the battle was won. If this was not done, one was treating these cases in a haphazard manner. There might be a streptococcus infection, or half a dozen other germs associated with it, but the streptococcus would be the dangerous one. It was the germ to fear. While the essayist did not say anything about the diphtheria germ, the speaker had found a number of cases in which the Klebs-Loeffler bacillus was the active germ, and these patients had recovered upon the administration of serum. The germs had doubtless been introduced either by the accoucheur or nurse. To get at the bottom of these cases, in order to prevent infection one should impress more and more upon the minds of those who attended these patients the necessity of mak-

ing as aseptic an operation at the time as possible. If every case were attended by a man who was accustomed to doing abdominal surgery, there would not be so many cases of infection. Many of the patients were treated by general practitioners who were not careful in regard to their fingernails and hands, consequently patients were infected.

With reference to the instillation of alcohol for the cure of streptococcus infection, he had not tried it. He did not know its positive effect upon this germ. He had used it when engaged in general practice, in cases of infection of the throat, and knew that it killed the streptococcus.

He believed the essayist was right in regard to the use of the uterine douche. It should be used with the utmost care and by an experienced person. One could use the iodine mixture (iodine and glycerine) with perfect freedom in the uterus and vagina. If one could get the cases of streptococcus infection early, before the buckskin-like membrane appeared on the vagina and cervix, before it had extended to the uterus, he could cut short every one of the cases by the iodine treatment. It should be applied two or three times a day. If the infection extended to the uterus, it was a different problem, and the patient might succumb to it.

DR. JOHN E. ALLABEN, of Rockford, Ill., by invitation, said that one great error in the use of the curette was a misunderstanding by some physicians of the actual condition of the lining membrane of the uterus after confinement. One case in his own experience brought this question forcibly to his mind, where a physician attended a patient with infection following some days afterwards, and on examination the lining membrane of the uterus revealed a rough condition. The attending physician, finding this condition, had used the curette vigorously and exhibited some of the material removed, which, in fact, was not retained placental tissue, but was really the normal tissue of the uterus. After confinement, when the placenta had been expelled, if the finger was passed up to the fundus of the uterus, nearly every one who had had experience of that kind knew the lining membrane of the uterus was not smooth at the site where the placenta had been shed, but was rough. This was its natural condition, and the feeling of the uterus where it was smooth indicated that there was some retained placenta which might be removed with the forceps or finger.

The use of tincture of iodine was especially of service in cases of puerperal infection. He had used it frequently. He used the compound tincture of iodine pure. He thought it was much better than carbolic acid, because the latter produced more or less cauterization of the cervix and did not penetrate deeply into the infected uterine tissue.

DR. THOMAS B. NOBLE, of Indianapolis, Ind., called attention to the effect of anti-streptococcic serum and the signal benefits that attended its use in some cases.

DR. WALTER B. DORSETT, of St. Louis, Mo., considered drain-

age one of the most effectual remedies, whether anti-streptococcic or anti-diphtheritic serum was used or not.

DR. GILLIAM closed the discussion.

PENETRATING AND PERFORATING GUNSHOT AND STAB WOUNDS OF THE ABDOMEN, WITH REPORT OF CASES.

BY

JOHN YOUNG BROWN, M.D.,

St. Louis, Mo.

IT is generally agreed among surgeons that all penetrating gunshot and stab wounds of the abdomen should be treated by immediate section, with repair of all visceral injuries. A careful analysis of the statistics of Klem, Douglas and Parker will lead us to but one conclusion. True it is that the experience of those surgeons who served in the Spanish-American and Anglo-Boer wars led them to advocate the expectant treatment of such cases. It will, however, be difficult to convince those surgeons who have had any experience in the operative treatment of wounds of this character, that bullet wounds of bowel received in battle differ in any particular from the visceral injuries and peritoneal perforations inflicted in times of peace, and while, as Senn remarks, "there are many circumstances in military practice that militate against the propriety and feasibility of resorting to formidable surgical interference in such cases," he, however, strongly advocates prompt surgery in all instances in which, owing to the course of the missile, it is reasonable to assume that the bullet has made visceral injuries that would be almost certain to destroy life without surgical interference. The brilliant work of H. H. Grant, Richard Douglas, Mayo, Rodman, Vance, LaPlace, Ochsner, Louis Rassieur and others, leaves no room to question the advisability of prompt and thorough surgery in the treatment of these cases. The questions to be determined in the future are, not when to operate, but *how* and by what surgical methods we can best meet the indications in such cases. My opportunities for observing wounds of this character are exceptionally good.

At the St. Louis City Hospital, of which institution I have charge, we receive almost all of the gunshot injuries occurring in that city, and as St. Louis is a city of 700,000 people, we, perhaps, treat more of these cases than are treated at any one institution

in this country. During the last three months I have operated
on quite an interesting series of cases, which I wish to report for
your consideration, giving, in detail, the methods employed. This
I can best do under separate heads.

Preparation of Patient.—When a gunshot or stab wound of
the abdomen is received at the hospital, it is assumed that the
wound is a penetrating one, until it is proven to the contrary; con-
sequently the patient is immediately prepared with the same care
as for a laparotomy; catherization is done, the abdomen is shaved,
scrubbed with green soap, washed with bichloride and alcohol,
and when the preparations are complete, his wounds are examined
to determine whether the bullet or knife has penetrated the peri-
toneal cavity. The wound of entrance is enlarged and the track
of the bullet is traced with the sterile finger. The probe is never
used, except to complete the investigation. Occasionally a case
will occur where, even after cutting down to peritoneum, it is
difficult to demonstrate penetration. This condition is often found
where the wound is made by a bullet of small caliber. Here the
probe is a valuable instrument. Case VI illustrates this point.
This patient was brought to the hospital with small bullet wound
through right rectus muscle, one-half inch below and to right of
umbilicus. There were no evidences of shock. Pulse good and
to all appearances the wound was an innocent one. Wound en-
larged, but finger could not demonstrate penetration. Patient
was anesthetized and wound opened down to peritoneum; with
a probe a small opening in peritoneum was found. Section was
immediately made and two wounds of small bowel repaired. This
case is doubly instructive, in that it demonstrates the difficulty
encountered at times in determining penetration, as well as the
importance of demonstrating this point. Here was a wound, ap-
parently a non-penetrating one, which proved to be not only pene-
trating but perforating. When a knife or bullet has penetrated
the peritoneal cavity, there is but one method of determining
perforation and that is, by means of an abdominal section and a
careful investigation of the abdominal viscera. An extensive
operative experience has taught me that this is the only safe
course. I have time and time again opened the abdomen when
all symptoms pointed to perforation and have, after thorough
search, found no injury to viscera. Then again, I have operated,
expecting to find no injury to bowel and have found anywhere
from one to nine perforations. Section properly performed is
safe and, like some of our election laws, leaves nothing to chance.

During the last three months we have had eight exploratory laparotomies for gunshot wounds, without a death.

The hydrogen gas test of Senn, I do not consider safe. To distend a bowel injured in one or more places, fecal extravasation is bound to occur. When penetration is proven, section should follow as a natural sequence. In the majority of cases I have found a median abdominal incision most appropriate. The incision may be short or long; personally, I prefer a long incision. It may be below or above the umbilicus. In gunshot wounds it is wise to make an incision from the ensiform cartilage to umbilicus. The extent of injury done by a bullet can never be determined until the abdominal contents have been thoroughly gone over. In stab wounds, the location of the wound should govern us, both as regards length and situation of abdominal opening.

Search for Visceral Injuries.—I can not emphasize too strongly the importance of systematic search for visceral injuries. Success in the treatment of these cases depends on the thoroughness with which the surgery is done. To repair three or six wounds of bowel and leave one, defeats the purpose for which the operation was performed. The following case will illustrate this point:

Frank M., (Col.) was admitted to hospital suffering from gunshot wound of the abdomen. Examination showed bullet to have entered right ileum one inch behind anterior superior spinus process. Patient was shot twenty-eight hours before coming to hospital. After the injury, he walked two miles, got a wagon, drove to nearest town and was brought to St. Louis on train. When admitted to hospital he gave evidence of widespread peritonitis. Pulse rapid; temperature 103°. He was prepared at once for section. On opening the abdomen the peritoneal cavity was found to contain considerable blood and bowel contents. A number of grains of undigested corn were found scattered between coils of intestines. The peritonitis was widespread. A wound in the cecum was repaired. Four wounds of small bowel, in close proximity, were found. Six inches of small bowel was resected and an anastomosis made with Murphy button. The peritoneal cavity was flushed and drained. Patient died in twenty-four hours of peritonitis. Autopsy showed leakage from overlooked perforation in cecum. The Murphy button union and wound in cecum was tight.

While it is probable that this patient would have died, even if perforation had not been overlooked, it nevertheless emphasizes the importance of careful search for all bowel injuries. It is

our custom, in all cases of gunshot wounds of the abdomen, to examine the viscera in the following manner : The stomach is examined fore and aft; the liver and spleen then gone over. Beginning at angle of Tritz, the small intestine is followed to ileocecal valve. The ascending, transverse, descending colon and sigmoid flexure are then examined. A systematic search of this character precludes the possibility of overlooking injuries to peritoneal contents.

Control of Hemorrhage.—Injuries to vessels of mesentery and omentum can be readily controlled by ligature. Hemorrhage from liver, pancreas and spleen are, in some cases, hard to manage either by ligature or suture. In such cases, a properly applied gauze pack should be used. The following is of exceeding interest and demonstrates how difficult it is in many cases to control hemorrhage :

Mandy B., age 28 years, was admitted to hospital suffering from stab wound of the abdomen. Knife entered outer border of left rectus muscle, on level with eighth rib. Wound traced and found to have taken a slanting course and to penetrate. Patient was suffering considerably from shock. She was immediately anesthetized and adbomen was opened. On opening peritoneum, the hemorrhage was found to be profuse. An incised wound of the lower border of left lobe of liver was found and closed with two silk sutures. There was marked gastroptosis. The knife blade was found to have grazed the upper border of pylorus, cut through gastro-hepatic omentum and entered head of pancreas The hemorrhage from this source was alarming. An effort was made to control this with ligature, and by tying *en masse*, was partially successful. Careful gauze packing stopped the bleeding completely and the patient made an uneventful recovery. There are a number of interesting points in regard to this case which I will fully discuss in a future article.

Irrigation and Drainage.—I am a great believer in the virtues of irrigation and drainage in the treatment of wounds of this character. Normal salt solution is invariably used and used in large quantities. The apparatus is the flush tube and funnel of Price. The objects to be obtained are : (1) To cleanse the peritoneal cavity ; (2) to combat shock. To accomplish the first purpose, the irrigation should be thorough. The region of the liver, spleen, both iliac regions and the pelvis are flushed until the irrigating fluid returns clear. This, as a rule, is done at the completion of the operation. In cases where the shock is great, it

is my custom to fill the peritoneal cavity with salt solution as soon as the abdomen is opened. The solution is rapidly absorbed and it is remarkable how quickly the pulse will respond.

Regarding drainage, I believe that in all cases where there has been a solution of continuity of bowel, the drain should be used. It may be of glass, gauze or rubber. I use, as a rule, the gauze wicks and endeavor to bring them out through the wound of entrance. If the incision extends sufficiently low, a glass drain is placed in the pelvis. Before closing the abdomen, the omentum should be carefully spread over the intestines.

Closure of Incision.—As the incision in these cases is generally a long one, the greatest care consistent with rapid work should be exercised in closing it. If the condition of the patient permits, the wound should be closed with buried suture; otherwise with through and through sutures of silkworm gut. In order to prevent post-operative hernia, the laparotomy wound should be completely closed and the drains brought out either through wound of entrance or through puncture made for this purpose.

The following cases I will briefly report:

PERFORATING WOUNDS OF INTESTINES.

CASE I.—Wm. O. Patient was admitted to the hospital suffering from stab wound of the left side, knife entering at lower border of twelfth rib, one inch to left of mammary line. Wound was traced and found to penetrate peritoneal cavity. Patient was immediately prepared for section. An incision was made in median line extending from one inch below ensiform cartilage to one inch below umbilicus. On opening abdomen, the peritoneum was found filled with beer, spaghetti and blood. On examining the stomach, a wound was found in anterior wall from which contents of stomach was freely escaping. Stomach wound was immediately closed with through and through sutures of silk, which were buried by a row of Lembert stitches. Systematic search was made for other injuries to viscera, but none were found. Abdominal cavity was freely flushed with five gallons of normal salt solution. A drain was introduced through original stab wound and median incision was closed with buried silk for peritoneum and fascia and silkworm gut for skin. In this case, although the stomach was perforated and abdomen was full of blood and stomach contents, there were no evidences of perforations revealed prior to section. Before patient came out

from anesthetic, the stomach was washed out with stomach tube. Recovered.

CASE II.—Wm. W. Patient was admitted to hospital suffering from gunshot wound of the abdomen. Bullet entered abdominal cavity on left side, three inches to left and one inch above umbilicus. Wound was traced and found to be penetrating. Abdomen opened. Six-inch incision extending from one inch below ensiform cartilage to umbilicus. Usual search was made for visceral injuries. Seven perforations of ileum were found, which were closed with through and through sutures and buried with Lembert sutures. Peritoneal cavity flushed with five gallons of salt solution. Two gauze drains placed. Wound closed with through and through sutures of silkworm gut. Recovered.

CASE III.—Laura P. Patient was admitted to hospital suffering from gunshot wound of abdomen and right forearm. Bullet entered abdominal cavity three inches to right of median line and one inch below umbilicus. Wound traced and found to penetrate peritoneal cavity. She was immediately prepared for section. Median incision was made, six inches in length, extending one inch below ensiform cartilage to one inch below umiblicus. Examination revealed two perforations of small bowel, which were closed with through and through sutures, buried by Lembert sutures. Peritoneal cavity flushed with hot salt solution and gauze drain placed. Incision closed with through and through silkworm gut. Patient made uninterrupted recovery.

CASE IV.—Lucille M. (Col.) Patient was admitted to hospital suffering from gunshot wound of the abdomen. Bullet entered right rectus muscle one-half inch to right and above umbilicus. Patient had been drinking freely prior to admission. Bullet wound traced and found to penetrate peritoneal cavity. Patient suffered little from shock and there were absolutely no evidences of penetration. Bladder was catheterized and urine contained no blood. She was immediately prepared for section. An incision, six inches long in median line extending from one inch below ensiform cartilage to one inch below umbilicus, was made. On opening peritoneal cavity, quite a good deal of blood was found. The stomach was examined, fore and aft, and no perforation found. Beginning at the angle of Tritz, the small intestine was gone over. Nine perforations were found in small bowel. Six inches of small bowel resected and anastomosis made with Murphy button. Three other perforations were repaired with through and through silk sutures buried by interrupted

Lembert sutures. The ascending transverse and descending colon and sigmoid flexure were then examined and found to be intact. The peritoneal cavity was copiously irrigated with five gallons of normal salt solution. A glass drain was placed at lower angle of wound and a small gauze drain through wound of entrance. Incision closed with through and through silk suture. Usual dressing applied. Patient was put to bed in fairly good condition. Time of operation 65 minutes. Patient recovered.

CASE V.—Wm. L. Patient entered hospital suffering from stab wound of the abdomen. Knife entered abdominal cavity in right iliac region, midway between anterior superior spinous process of ileum and umbilicus. Patient gave no evidence of perforation. Wound traced and found to penetrate peritoneal cavity. Section made immediately after usual preparation. Incision in median line, four inches in length, extending from umbilicus to one inch above pubes. Four perforations of small intestine were found and repaired with through and through sutures of silk, buried by a row of Lembert sutures. Cavity flushed with hot salt solution. Gauze drain. Wound closed with through and through sutures of silkworm gut. Patient made uninterruped recovery.

CASE VI.—Chas. W. Patient admitted August 24, suffering from gunshot wound of the abdomen. Bullet entered right rectus muscle one-half inch below and to right of umbilicus. There were no evidences of penetration or perforation. Wound of entrance enlarged, but finger was unable to demonstrate peritoneal penetration. Patient was anesthetized and wound further enlarged and retractor introduced. After careful search, peritoneal penetration was demonstated with probe. On opening abdomen, there was considerable blood in peritoneal cavity. The usual search was made for intestinal perforations. Two perforations were found in small bowel and closed with a double row of Lembert suture. Peritoneal cavity was copiously irrigated with hot salt solution and wound was closed with layer sutures of silk. No drainage. This case was interesting in the extreme, as the patient gave no evidences of penetration or perforation, and it was only after a free division of tract down to peritoneum and the introduction of retractor that the penetration of peritoneal cavity was demonstrated. The dressings were of dry gauze and the usual binding.

August 26th.—Forty-eight hours after section patient developed symptoms of intestinal obstruction. Abdomen was opened. Ow-

ing to close proximity of wounds in small bowel, it was found
that lumen of gut was contracted. Quick resection was made
with Murphy button. Cavity irrigated. A drain placed in upper
angle of wound. Incision closed. Patient did well up to
September 3rd, when he developed pneumonia. Died september
6th. Autopsy showed Murphy button loose in bowel; union
perfect. No evidences of peritonitis. A small fecal fistula was
found in upper angle of wound; result of agglutination of bowel
to line of peritoneal incision. No leakage into peritoneal cavity.

Case VII.—Will J. Patient entered hospital suffering from
gunshot wound of right shoulder, left arm and wrist; also gun-
shot wound of abdomen. Bullet entered abdomen above umbili-
cus, one inch to right of median line. Bullet traced and found to
penetrate peritoneal cavity. Patient vomited a considerable quan-
tity of blood and was suffering from shock and gave evidence
of severe internal hemorrhage. Section was done immediately.
On opening the abdomen in median line, quite a quantity of
blood was found in peritoneal cavity. Search revealed a huge
tear in transverse colon ; extensive injury to mesentery and omen-
tum. Bowel contents, consisting of beer, etc., free in peritoneal
cavity. Hemorrhage checked and quick resection of transverse
colon made with Murphy button. Cavity flushed with hot salt
solution. Gauze drain placed. Patient returned to bed. Patient
died of shock three hours after operation. This case was very
unpromising from time he entered hospital and surgery held out
to him little hope.

Case VIII.— Frank M. (Col.) Patient was brought to hos-
pital suffering from gunshot wound in right ileum. He was
brought in from the country, having been shot the night before,
and when admitted, his abdomen was distended. Temperature
103° ; pulse 140. He was immediately prepared for section. Six
inches of small bowel resected, in which four perforations were
found. Anastomosis made with Murphy button ; wound in cecum
closed. Patient died forty-eight hours after operation. Autopsy
showed leakage from undiscovered wound in small bowel. The
other wounds showed no leakage. Murphy button union tight.
This patient was suffering from widespread peritonitis when ad-
mitis to hospital. The peritoneal cavity was full of bowel con-
tents ; a number of grains of corn being found. Although a care-
ful search was made for bowel injuries, one was overlooked. This
was due to the congested condition of bowel and to the desire on
my part to finish the operation quickly, owing to bad condition of

patient. The autopsy was interesting, in that it showed the Murphy button union was tight; also, the wounds closed with the sutures. The case was unpromising from the beginning and perhaps would have died if the perforation had not been overlooked.

CASE IX.—Matheu L. Patient was admitted to hospital at 1:25 A. M., suffering from gunshot wound of the abdomen. Bullet entered right rectus muscle, one-half inch to right and one inch above navel. Patient was suffering from shock and gave evidence of internal hemorrhage. Bullet wound was traced and found to penetrate peritoneal cavity. Patient was immediately prepared for section. Incision made in median line, six inches in length, extending from one inch below ensiform cartilage to one inch below umbilicus. Examination revealed eight perforations of small bowel, all within an area of nineteen inches. Bowel resected with Connell suture; nineteen inches of gut being removed. Considerable bowel contents free in peritoneal cavity. No other visceral injuries discovered. Abdomen freely flushed with hot salt solution. Wound closed with through and through silkworm gut sutures. Patient died forty-eight hours after section. General peritonitis.

WOUNDS OF LIVER.

CASE I.—James McC. C. Patient was brought to hospital suffering from stab wound of the abdomen. Knife entered epigastric region through right rectus muscle. Patient showed no evidences of shock. Wound traced and found to penetrate peritoneal cavity. Patient prepared for section in the usual manner. Incision made in median line, six inches in length, extending from one inch below ensiform cartilage to one inch below umbilicus. Stomach and intestines examined; no perforation. Incised wound of liver was found, which was closed with two silk sutures. Blood sponged out of peritoneal cavity. Wound closed without flushing or drainage. Patient made uninterrupted recovery.

CASE II.—Fannie D. Patient admitted to hospital suffering from stab wound of the abdomen. Knife entered one and one-half inch below ensiform cartilage, slightly to left of median line. Wound traced with finger and found to penetrate. Patient was immediately prepared for section. Six inch incision was made in median line, extending one inch below ensiform cartilage to one inch below navel. On opening peritoneal cavity, abdomen was found filled with blood. Abdominal contents carefully gone over, but no injury to intestine found. Incised wound in liver

was discovered, from which the hemorrhage came. Wound was packed with gauze, which controlled the hemorrhage. Cavity flushed with hot salt solution. Abdomen closed. Patient made uninterrupted recovery.

CASE III.—Al S. Patient admitted to hospital suffering from two stab wounds of abdomen. Knife entered on left side in axillary line at border of eleventh rib. Omentum was found protruding from this wound. A second wound on right side one and one-quarter inch to left of mammary line in tenth interspace. Patient was prepared for section. Incision was made in median line extending from one inch below ensiform cartilage to one inch below umbilicus. On opening abdomen, peritoneal cavity was found filled with blood. A wound was found in the liver, right lobe, which admitted one finger. Hemorrhage was quite free. Wound was immediately plugged with gauze and gauze brought out through wound of entrance. This controlled the hemorrhage. Systematic search was made for other visceral injuries, but none were found. Copious irrigation with salt solution was then made and incision closed with buried sutures. Silk for peritoneum and fascia, and silkworm gut for skin. Patient left table in fair condition. Recovered.

CASE IV.—Harry D. Patient was admitted to hospital suffering from gunshot wound of the abdomen. Bullet entered right side, border of ninth rib, two and one-half inches to the right of median line, radiating down and outward. Wound traced and found to be penetrating. Patient was immediately prepared for section. Median incision was made six inches in length, extending from ensiform cartilage to one inch below navel. Wound in right lobe of liver was found; hemorrhage quite free. Wound packed with gauze and hemorrhage checked. No injury to other viscera. Gauze drain inserted and abdomen closed with through and through sutures of silkworm gut. Patient had uneventful recovery.

CASE V.—Wm. B. Patient admitted to hospital suffering from gunshot wound of the abdomen. Bullet entered left rectus muscle one-half inch below border of ribs. Wound traced and found to penetrate. Patient was suffering greatly from shock. Pulse rapid and feeble. He was hurriedly prepared for section. On opening abdomen, hemorrhage was found to be terrific. Source of hemorrhage was from liver; left lobe containing large bullet wound. Hemorrhage was partially controlled by gauze plugging.

No other visceral injuries discovered. Patient never reacted from shock, but died three hours after operation.

An analysis of the above report shows nine cases of perforating wounds of intestines, with six recoveries and three deaths. Of the deaths, it will be seen that one was due to shock; the injuries being so extensive that patient never reacted. The second case entered hospital with general peritonitis, and while a perforation was overlooked, it is probable that the result would have been the same if this injury had been repaired. The third case should have been saved.

Of the wounds of the liver, five cases in all, four recovered and one died. This case died three hours after operation from shock, the result of hemorrhage.

Wound of pancreas, the case recovered.

To these cases I wish to add eight cases where laparotomy was performed and no injury to viscera found. This makes a total of twenty-three cases, with nineteen recoveries and four deaths.

MARYLAND AND EUCLID AVENUES.

DR. WILLIS G. MACDONALD, of Albany, N. Y., saw nothing in the entire paper that was open to criticism except the preliminary statement that the conditions were similar in may respects in dealing with gunshot wounds in military practice to those encountered in civil practice. He would vigorously dissent from such a statement. The conditions of the well-regulated hospital, even in the private house and the home, were very different from those secured on the battlefield. One would not be able to do abdominal sections in military surgery in hospitals with any very great advantages. The question of transport from the field would very often involve the first twelve hours before it was possible to get the patient out of the range of active firing. The immense distances covered by the modern rifle compelled medical officers to put the field hospital at a considerable distance from the firing line. Mauser bullets were no great respecters of the Red Cross, though it might be some little distance away, and generals in command of armies were likely to take advantage of position, and about the time one was ready to do an abdominal section for the relief of a gunshot wound of the abdomen, the bullets might be coming over his way, and this was about the time he would be trying to get behind a ridge. Personally, he had never been on a battlefield. He had not been within five hundred miles of one, but in his day he had been about as near as a great many surgeons, and he knew that in the month of July, 1898, with the appliances afforded by the armies of the United States in the South, that in none of the State camps could abdominal surgery have been successfuly done with any great percentage of cures. He saw men come from

Santiago who had on the primary dressings of the battlefield. He saw them on the 10th and 12th days of July, eight or nine days after they had received the wounds. There was no question as to the points of entrance and exit of the bullet. There had been penetration of the peritoneal cavity; yet one of these men came North inside of two weeks without any disagreeable symptoms. Another one presented evidences of plastic peritonitis, so that the evidence at one time seemed clear enough to open up apparently a localized inflammatory focus. Those men who were operated on just after the battle uniformly died. He knew of two men who recovered that were not operated on, one of whom was subsequently killed in the Chinese expedition.

A .22 or .30 calibre Mauser made a perforation which was practically closed by mucous membrane. If men had their intestinal canals entirely empty when wounded by the high power guns, a considerable number of them would recover, even though they received no surgery. But suppose, again, one was able to do abdominal surgery on the battlefield, the matter of transport in the next thirty-six hours would present itself, and this would seriously affect the patient. Aside from the differences which he conceived to be those which obtained in military practice, he had nothing but commendation for the excellent paper of the essayist.

Dr. Edwin Ricketts, of Cincinnati, O., agreed with the essayist that in this particular class of cases the rapidity with which one could make use of the Murphy button in doing the anastomosis was so great and so perfect that there was no comparison whatever between an anastomosis made with it and the Connell suture. While the Murphy button had not been used to the extent that it was formerly, the cases reported by the essayist as well as others were sufficient proof to convince one that the Murphy button was bound in future to be used more than it had been in the past.

Dr. John B. Murphy, of Chicago, said he could not help but notice the frequency of the sentence, "Made an uninterrupted recovery," as contrasted with the records of similar cases reported twelve and fifteen years ago, when a familiar sentence was, "Went uninterruptedly to death."

As to the management of these cases, the *first* point for consideration was the control of hemorrhage; *second*, overlooked perforations. This was avoidable, although he regretted to admit that he had had a case within two years in which he overlooked three perforations of the bowel because he thought he knew too much about the subject. He felt that a bullet going in a certain direction and entering the abdomen in a certain place could not possibly penetrate the small intestine. However, a post-mortem examination made at the Coroner's inquest showed that it could and did. This should not occur, and would not occur if one took the proper precautions in regard to the large or fixed portion of the intestine.

Irrigation in cases of gunshot wounds of the abdomen was important, because the contents of the intestinal tract were in the free

cavity. The cavity needed to be washed and cleansed as thoroughly as possible.

The next element of importance was the closure of the abdominal incision, with or without drainage. He believed drainage was safer. It should be instituted in the most dependent portion of the cavity, when the patient was placed at an angle of 45 degrees in the sitting posture, and fixed there.

Next was the matter of treatment of the patient after operation. The patient usually had distention of the intestines on account of paralysis from infection and manipulation. He was speaking now of paralysis and peristalsis. How could one best treat the patient afterward? The patient was absorbing toxic products in his peritoneal cavity, and he thought one could best treat him by continually filling the large intestine, getting the patient so that he would take in eight hours eight pints of fluid and absorb it from the large intestine. He believed the greatest advancement in overcoming an immediate primary and fatal dose of sepsis in peritoneal infection was met by the suggestion of filling the large intestine with large quantities of water, namely, by placing the hose above the level of the patient's bed, securing the rubber tube in the bowel with adhesive plaster, and allowing the water to seep in. It was the slow admission of this water that enabled it to become rapidly absorbed and carried the patient over the fatal point.

DR. BROWN, in closing the discussion, concurred in the remarks made by Dr. MacDonald that the conditions were entirely different in military practice from what one found in hospital practice. He desired to emphasize how unreliable military statistics were. For instance, recently there was a published series of statistics in which military surgeons claimed that patients with penetrating and perforating gunshot wounds of the abdomen had recovered. He could not see how an assertion of this kind could be made unless perforation had been demonstrated by abdominal section. He had time and again opened the abdomen when everything pointed to a perforation, and he had felt confident that he would find one, yet none had been found. He had opened the abdomen, thinking perhaps he would not find perforation, and had found anywhere from six to nine perforations. The mortality in cases of this character was entirely too high, the reason for it being due to the fact that practitioners were prone to accept such statistics as had been furnished by military surgeons. Their statistics relative to the nature of abdominal injuries were largely speculative. If men with these wounds were gotten into the hands of surgeons early and promptly, and thorough surgery was done on them, he did not see why the mortality should not be materially reduced. The time of the operation in these cases was by long odds the important factor. It was difficult at times to demonstrate penetration. In the case the author cited in his paper, the wound, which was apparently innocent, was made with a small bullet. There was no evidence that penetration or perforation had occurred. Carefully dressing the wound of

entrance demonstrated that the bullet had not only penetrated but perforated the intestine. Cases of this character were frequent. If left alone, they would all die from peritonitis. He could not believe that patients with perforating wounds of the abdomen recovered without operation, judging from the experience he had had, and if perforation was suspected it was mandatory that an immediate operation should be done.

In the after-treatment of these cases, he fully concurred with Dr. Murphy in what he had said relative to the injections of water into the large bowel. He preferred salt solution.

There was one thing that he had fought about many a time, namely, the use of morphine. He was vigorously opposed to the use of this drug in abdominal work.

INFANTILE UTERUS, SCANTY MENSTRUATION, AMENORRHEA AND DYSMENORRHEA CURED BY STEM PESSARIES.

BY

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Detroit, Mich.

WHEN I was in general practice the most difficult and troublesome cases I had were those of poorly developed uteri with all the accompanying symptoms, and cases of scanty menstruation, especially in fat women with more or less painful flows caused by recurring stenosis. I of course treated them in the then orthodox manner; glycerin tampons, hot injections, painting the vault with iodin, gradual or repeated dilatation, with electricity, and all the nauseant emmenagogues that had been handed down to use for ages, and from which I never got any result. Finally the patients would drift away and then become subject to a similar course of treatment in other hands. I have tried all the new modes of treatment suggested and the wonderful new remedies so greatly lauded, but all around they never availed. It was the same old story. The one streak of light I had with these cases was when by a peculiar combination of circumstances the married patients accidently became pregnant. This would bring about such a wonderful change in the pelvic organs that they were not troubled in the future. Sometimes some of the girls would get married and the changed life would bring about relief.

Thirty years or more ago we occasionally used stem pessaries for the purpose of curing displacements. Velpeu was the first, I think, who urged this treatment, in 1840. Simpson and others

took it up.   Finally there were advocates and opponents of the use of stem pessaries.   As rupture in pus tubes and pelvic inflammation was caused, and if latent aroused to virulence, and as also infection was often introduced with it, in the course of time the stem pessary was discarded or was rarely used.   Thomas in his classical book had given a most perfect description of it.   He recognizes the danger of pelvic inflammation and warns against it, but recommends the stem in some cases.

I have looked over a great many of the newer text-books, and in hardly any of them do I find it mentioned.   I will not trouble you by quoting from the different authors who mention stem pessaries or who do not and which are matters of history.   I simply give you my reason for using the stem pessary in selected cases and you can judge of the value of this method of treatment in some troublesome cases by trying it yourself.

Many years ago I saw in a medical journal a recommendation to introduce a string of beads into the uterus in order to stimulate menstruation.   I never tried it and am sorry that I could not find the article, but at that time it impressed me as plausible.   It occurred to me, why not use a stem pessary for that purpose?   I used it with a large number of cases with success.   However, as I gave up general practice and limited myself to a specialty I see few cases except very intractable ones which I see in consultation.   And in those cases I have used stem pessaries, probably two or three a year.   Finding good results. I naturally extended the use in cases with different symptoms, and for different pathologic conditions.   I originally used the stem simply to stimulate menstruation where it was scanty or would only occur every three or six months.

When the question of infantile uteri was brought up it occurred to me that here was a class of cases where it ought to do good, especially as I had failed to give any benefit by the usual methods of treatment, including the much lauded treatment by electricity.   I found that after the use of the stem the uterus would enlarge and develop firmly and menstruation become established.   My theory was, that not only was the uterus stimulated and congestion produced, but that the nutrition of all the pelvic organs would be increased and the patient relieved.

Those other peculiar cases where the uterine canal is tortuous, cork-screw like, or with a stricture at the internal os which soon recurs after dilatation, I have found also relieved by introduction

of the stem pessary for six months or a year. The uterine canal would become patulous and remain so.

My theory of the action of the stem pessary is based on the physiologic development of the muscles by exercise. Poorly developed muscles can only be made strong and large by exercise, although some people think they get strong by rest, which is a great mistake. Athletes develop muscles, not by rest, but by the most strenuous exertions. The small uterus can only be made large and normal in the same manner; the uterus can only be exercised by putting some foreign substance into it. As the tendency of the womb is to expel all foreign contents, it exercises itself to get rid of the foreign substance and thus it gets strong and large. This principle should underlie the treatment.

The old way of treating these cases by massage with electricity is not sufficient. By putting something into the uterus the whole muscles of the uterus contract; during the first day or two it may be with pain like in labor, but after that the pain ceases and the patient does not know she wears a pessary. The greatest trouble I have had is to keep the pessary in. I have tried various kinds, but finally came to the Chapman pessary, which I have used for a good many years, and very seldom find one that cannot be retained. It is hard rubber, hence can be boiled to sterilize. It contains two blades which spread apart and hold it in place. They must be introduced by a special instrument and when the latter is withdrawn the two blades separate and the stem will not fall out. I then introduce a Thomas Hodge retroversion pessary as a special safeguard.

In some cases of retroversion this is a most excellent way of treating them. The introduction of the instrument is painful; hence you must use an anesthetic in nearly every case. As a rule, I take my patient to the hospital and prepare her with the same care and detail as in other operations. Introduce the instrument, which will only take a few minutes, and keep her in bed that day, perhaps even another day. Then allow her to get up and move around, and in three or four days she can leave the hospital and attend to her usual vocation. I allow the patient to do anything and everything—riding bicycles, traveling—in fact, she never knows she has a pessary in her. Every month or two I have her report. People living at a great distance only have to report every six months. The pessary does not interfere with coition.

Naturally the diagnosis must be perfect. *There must be absolutely no inflammatory pelvic trouble* either acute or latent. If there is ovarian or tubal trouble, other treatment, or operation, is necessary.

CASE I.—Miss L. C., aged 23; senior nurse; painful and irregular menstruation 6 to 8 weeks. Uterus 2¼ inches. Introduced stem pessary November 27, 1900, and menstruation became regular and more profuse. When she graduated it was perfectly normal. She retained the stem pessary and left the city, nursing in Canada, New York, and different parts of the country, being always perfectly well. She returned August, 1902, nearly two years afterwards, the picture of health, and thought it was about time to remove the pessary, which I did. I saw her last week a year after I removed the pessary, and she was in perfect health and menstruation perfectly normal.

CASE II.—Miss R. H., aged 19; introduced stem pessary June 19, 1901; menstruation became regular and eight months afterward, January 31, 1902, I removed the stem. She was apparently in perfect health.

CASE III.—Miss A. F., aged 24; painful menstruation, very scant, lasting only one-half to one day, occurring every six weeks to three months. She was very fat. I introduced the stem pessary September 9, 1901. She returned to her home a hundred miles from here. As she had to go to New York on business every six months, she always stopped over here on her way. She was very much relieved in six months, as menstruation became regular and more normal, although still scant. I told her that we would leave in the pessary and she continued to wear it for two years. I removed it August 29, 1903. She had lost a good deal of flesh; menstruation was perfectly normal, lasting four days. She was in perfect health, as she expressed it herself, "she never felt better," attributing the good results to the use of the stem pessary. Naturally I agreed with her.

CASE IV.—Miss E. B., aged 24; large girl with irregular, scanty, and painful menstruation. I introduced the stem pessary June 21, 1902. She went to the seashore of Massachussets, leading an active society life. She developed a great deal of pain and evidently some pelvic inflammation started up. She telegraphed to me asking advice, and I told her to send for Dr. E. W. Cushing, of Boston, who would remove the pessary. He did so. She still has some slight trouble with menstruation, but is in good health.

Having treated many individuals with benefit I urge the profession to try the stem in selected cases. Pelvic inflammatory disease of any kind must be absolutely excluded. No after treatment is necessary, not even douches need be given.

I will recommend this plan of treatment in the following kinds of cases:

1. Infantile and poorly developed uteri.
2. Amenorrhea.
3. Scanty and irregular menstruation as found in fleshy women.
4. Simple cases of retroversion in young girls.
5. Cases of stenosis or tortuous uterine canal.
6. The stem must be worn at least six months. A year or even two years is better. If at any time irritation is produced, the pessary can be easily removed.

620 Woodward Avenue.

Dr. Fernand Henrotin, of Chicago, by invitation, said that if he were to give any definite ideas in regard to the treatment of this class of cases, and was called upon for advice in a general way, he would say, "Don't do it." However, in the right place, under the right circumstances, with the right case, the right man, and the right surroundings, it was a form of treatment which was based on common sense and frequently succeeded. The possibilities of harm, however, resulting from stem pessaries were so numerous that it was not necessary to dwell upon them in the presence of a body of gentlemen who were so well informed.

The report of the cases given by Dr. Carstens indicated that the Michigan women were really a very healthy class, and that they could stand going around wearing uterine stems without any harm, but this would not work well in women all over the country. However, when a man had had considerable experience and had his patients under good control, this treatment was worthy of trial in the class of cases discussed by the essayist.

Dr. Charles L. Bonifield, of Cincinnati, O., said the theory on which Dr. Carstens based his treatment was absolutely correct. However, he had been afraid to use the stem pessary and had tried to secure results in other ways. The manner in which he had tried to exercise the uterus was by thoroughly dilating the cervix and packing it as tightly as possible with iodoform gauze, so tightly very frequently that the gauze was expelled. The results from this treatment he admitted were not so permanent as those secured by the use of stem pessaries, but the method was less dangerous. In his experience it had often been necessary to curette cases two or three times, say at intervals of from six months to two years. Sometimes he had been able to prolong the benefits derived from the curette by inserting a small wisp of iodoform gauze without any curettage or dilatation, allowing the uterus to contract on

the iodoform gauze. Of course, one should thoroughly sterilize the vagina before introducing the iodoform gauze, as well as the cervical canal. He believed the stem pessary was invaluable in a certain number of cases.

Dr. H. W. Longyear, of Detroit, Mich., congratulated the essayist on his excellent results in the use of stem pessaries. Personally, if he had used a stem pessary in any case and allowed the patient to go out of town, he would have been scared out of his wits. Furthermore, he would expect patients on their return, who had worn these pessaries, to give him a scolding, for he believed it was a dangerous thing to do. He had a stem pessary made of silver which was easily introduced. He had exhibited this before the Association at a previous meeting, and had used it in the class of cases discussed by Dr. Carstens, but he would not think of allowing patients to pass from his observation, and when he introduced this pessary he told the patient to come back soon and not leave town. He believed it was the best kind of stem pessary and was least irritating. Most stem pessaries were liable to produce irritation and inflammation of the parts.

Dr. D. Tod Gilliam, of Columbus, O., said the great majority of cases in which there was disordered menstruation were due to an unripe condition of the uterine tissue, and nothing had been more clearly demonstrated of late years than that a uterus in a case of dysmenorrhea of any form was not a ripe uterus. There were different ways in which one might possibly stimulate the uterus and bring about a more vigorous action of it, so that it would right itself. One should remember the idiosyncrasies of individuals. What was food for one was poison for another. While the cases reported by the essayist were well selected and beneficial results had been obtained, there were many cases on record in which the introduction of the stem pessary by careful and good men had been very pernicious, and had not done good, and if one could stimulate the uterine tissue by any means and further its development, a great deal would be accomplished. Frequently it was not so much the muscular layer at fault as it was the mucosa, and sometimes it included not only the uterus, but the adnexa as well, and attention to these would enable one to secure good results. In cases of dysmenorrhea, one should look farther back than the os internum. One frequently found it was due to pressure. If one could stimulate the uterus to a freer circulation, results would be obtained. While he believed Dr. Carstens' method was beneficial in properly selected cases, it would take a man like Dr. Carstens to select suitable cases for the use of stem pessaries.

Dr. Carstens, in closing the discussion, said that twenty years ago, when the members of the profession knew nothing about antiseptic surgery, it was bad practice to use stem pessaries. These pessaries were used then for the purpose of keeping the uterus in position, with the result that there was pelvic inflammation and other troubles, consequently these pessaries were discarded. In

his paper he referred to cases of undeveloped uteri accompanying scanty menstruation, or almost absence of menstruation. The vagina and uterus were cleansed before the stem pessary was introduced. If properly introduced a stem pessary did not irritate the uterus; it kept it in place, and the uterus contracted on the pessary. The whole question revolved around the one point of correct diagnosis. The introduction of stem pessaries in many of these cases had afforded great relief.

Dr. John B. Murphy, of Chicago, read a paper entitled

TUBERCULOSIS OF THE FEMALE GENITALS AND PERITONEUM.[1]

Dr. Rufus B. Hall, of Cincinnati, O., read a paper entitled

MOVABLE KIDNEY WITH SECONDARY CYST FORMATION RESEMBLING OVARIAN CYST.

Dr. Herman E. Hayd, of Buffalo, N. Y., had read a paper before the Association at a previous meeting on the same subject. So far as making a differential diagnosis between hydronephrotic cyst and ovarian cyst was concerned, it was very difficult, if not impossible, because the abdomen was uniformly distended and the urinary symptoms were negative. Even a cystoscopic examination did not help very much. In a case he reported he removed over twenty quarts of water. The cyst was removed through an anterior incision. The patient was a woman, fifty years of age, who manifested no sypmtoms that suggested any trouble other than the huge size of the abdomen.

While he congratulated the essayist on the results in his cases, he did not believe it was good practice to attack them through an anterior incision. It was better to do a nephrotomy and drain the kidney through the back. After the cyst had contracted, it was a simple matter in the course of a few weeks to go in and remove the kidney through a posterior loin incision.

Dr. James F. Baldwin, of Columbus, O., said that a splenic tumor was sometimes mistaken for a left kidney or a tumor of the left kidney, but the spleen overrode the colon. It was bound to be on the other side in case of an enlarged spleen; but the differential diagnosis in these cases could be made with the utmost simplicity by inflating the colon.

Dr. Emil E. Guenther, of Newark, N. J., believed the best incision in these cases was through the back. He did not see why, if the case had been tapped and the character of the cyst or tumor made out, one should open the peritoneal cavity, thereby running the risk of infecting the cavity.

Dr. Willis G. MacDonald, of Albany, N. Y., said, as to the technique of the operation done by the essayist, it presented many distinctive advantages over the loin incision in a tumor of the nature described. He had done a large number of secondary nephrectomies after the use of a drainage tube in the back, and had not

[1] Will appear in a succeeding number of the Journal.

been altogether pleased with that operation. The removal of the kidney by *morcellement* was associated with very serious hemorrhage, and frequently it was very disastrous to the patient. One could remove a large pus sac, such as the essayist had described, with far more ease than he could when the thing became consolidated around a drainage tube or sinus.

A lobulated kidney was different from what the essayist had described. When a man had a lobulated kidney the surgeon needed to be very careful before putting his hand to the scalpel. Lobulated cystic kidneys seldom reached the great size presented by the case of Dr Hall, but were rather expressions of what had been described as congenital cystic kidney, multiple cystic kidney, and were likely to be dovetailed with one side greater than the other. A number of such cases had been described by Osler. The speaker had operated on three or four such cases himself.

Dr. Hall, in closing the discussion, said in the first case reported he was convinced from the clinical history that the patient formerly had kidney trouble. Even after several examinations, in which the urine was entirely negative, without pus, blood or albumin, he was reasonably certain that she had an ovarian cyst, and he did not carry the examination any further. He was somewhat nonplussed after opening the abdomen to find that she did not have an ovarian cyst. However, she made a good recovery.

SURGERY OF THE ILEOCECAL VALVE FOR NON-MALIGNANT DISEASE.

BY

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THE principal structures which enter into the intestinal tract are the serous, the mucous and muscular coats. At various places along the alimentary canal occurs an increase of one or more of these structures; this is especially true of the circular muscular fibers which are so grouped at certain points as to produce a valve-like action; whereof the pylorus, the ileocecal valve, and the rectal valve are the three prominent examples.

The fact is well established that the pylorus and rectal valves are peculiarly liable to inflammatory diseases with consequent hypertrophy or contraction of the tissues and attendant partial obstruction of the tract. It would be most natural to suspect the other one of the three, the ileocecal valve, of similar tendencies.

Again, the pyloric end of the stomach is rich with glandular

structures, and it is in this part of the stomach that we find gastric ulcers with the resulting cicatricial contractions and stenoses. So in the small intestine the glandular elements are much more numerous at the lower end of the intestine, where the ileocecal valve is located, and here, too, is found especial liability to ulceration in various diseases, such as typhoid fever and tuberculosis. Why should we not expect to find stenosis and contractions following such ulceration, as has been noted after ulcers of the stomach?

The medical history of this subject is remarkable—for its silence!

Senn[1] says of Legg: "This author could find in literature only six cases of non-malignant stenosis of the ileocecal opening." These were all found at post mortem. Three or four typical cases might be quoted:

"Miss ——, twenty-six years of age, was admitted into the hospital in April, 1858. Since she was five years old she had suffered from occasional attacks of colic, attended by constipation and vomiting. After such an attack eight years ago, a number of cherry-stones passed with the feces. Recently the attacks became more frequent; when admitted to the hospital she presented many symptoms of obstruction. In the right iliac fossa, on percussion, a dry crackling sound could be heard and felt. The symptoms of obstruction gradually became worse, and a few weeks after admission she died. At the necropsy the entire colon was found empty and contracted, the ileum very much dilated, so much so that the lower portion measured seven inches in circumference. On opening it fluid feces and a few fruit-stones escaped. Ileocecal orifice so contracted that it will admit only a No. 9 catheter."

Schroeder Van der Kolk's case showed at post mortem "An opening even smaller, and in the lower portion of the ileum, which was enormously dilated, a large mass of cherry-stones and fragments of bone were found."

At the necropsy of still another case, "The small intestine was found very much distended and the colon and rectum were contracted and empty. Just above the ileocecal valve the ileum was distended to the size of a fetal head, and adherent to the posterior abdominal wall, mesentery and coils of the ileum. The walls of the pouch were thickened and of a brown color. When opened, it was found to contain one hundred and twenty plum-stones and ninety-two leaden bullets. The ileocecal valve was nearly closed and was permeable only to fluids."

[1]Practical History of Surgery, Senn, 1901, page 925.

Herz[1] reports under the title of "Insufficiency of the Ileocecal Valve," two cases found at post mortem. He says : "There was present an inflammation of the ileocecal valve, especially on the ileum side." The clinical history of his cases is similar in all respects to that of other authors reporting cases of obstruction of the ileocecal valve.

Mayo[2] reports two cases as follows :

CASE I.—Miss E. V., twenty-one years of age, suffered from obstipation since childhood. For a year she had been troubled for days at a time with pain and soreness in the region of the appendix. Muscular rigidity was noted at examination. She was operated for appendicitis August 16th, 1899. At this time the small bowel was found to be full in spite of energetic purgation. At the junction of the ileum and cecum the caliber was markedly reduced, having the appearance of a string tied around reducing the lumen one-third. The patient's condition was not improved by this operation, and in December of the same year a plastic operation was performed on the ileocecal valve similar to the Heinicke-Mikulicz pyloroplasty, with permanent recovery.

CASE II.—Miss L. C., aged twenty-five years, was the subject of chronic constipation ; during the attacks of obstipation she was sore in the cecal region. A diagnosis of chronic appendicitis was made and the case was operated February 27th, 1900. The appendix was found to be normal, while the condition of the ileocecal coil was similar to that of Case No. 1, the same plastic operation was performed, and the same gratifying results obtained.

Beside these two of Mayo's, the other eight cases mentioned were all found at post mortem on account of the gross secondary changes which had taken place.

How many have passed beyond the reach of our profession prepared for some fatal disease by a contracted ileocecal orifice cannot be computed. Nor is it possible to form even an approximate estimate of the death list due directly to contraction and obstruction of the ileum, but incorrectly labeled.

The rarity of recorded cases is not so strange when we consider the virginal character of the territory under discussion. Literature gives us not only a scarcity of cases, but no adequate description of the disease or its diagnosis, its causes or its cure.

Then, too, the symptoms and signs of a contracted ileocecal valve are quite obscure, there being no pathognomonic symptoms,

[1] Wiener medizinische Wochenschrift, 1897, page 1651.
[2] Annals of Surgery, Vol. 32, page 364.

but merely a combination of those noted in appendicitis and ob-
struction of the intestine proper. (By this is meant obstruction
of the small intestine at any other points except at the ileocecal
valve.) While it is true that acute complete obstructions show
similar symptoms, whether they be intestinal or ileocecal, we are
not now especially concerned with this condition, nor with the
accidental presence of foreign bodies lodged at a normal ileocecal
valve. A chronic ileocecal obstruction will be more easily mis-
taken for chronic appendicitis than for chronic intestinal obstruc-
tion. There are several reasons for this: *First,* because the symp-
toms of appendicitis are more numerous and marked than those
of the intestinal obstruction; *second,* because appendicitis is itself
of more frequent occurrence than either the intestinal or valvular
obstructions; *third,* a large proportion of these cases suffer from
a combination of chronic appendicitis and ileocecal contraction.

The following are a few of the more important signs and
symptoms:

Periodical pains at McBurney's point, with thickening of the
tissues, sometimes to such an extent as to form a good-sized
tumor. Tenderness of the same point sometimes accompanied by
rigidity of the abdominal muscles.

Pain in the stomach; acid or gaseous eructations, and other dys-
peptic symptoms. Auto-intoxication, as manifested by headache
and various neurasthenic conditions. Disturbances of the bowels,
usually constipation, but in some cases diarrhea followed by con-
stipation. Relief by enema found to be inefficient, unless the ileo-
cecal valve is reached. Evidences of dilatation of the lower end
of the ileum, of which the most prominent symptom is the pres-
ence in the right iliac fossa of a tumor which comes and goes,
usually accompanied by colic-like pains, sometimes disappearing
with a gurgling sound. Of course, general asthenia is noted in
this as in most other disorders of the alimentary canal. In severe
attacks there is fever and sometimes vomiting. Not all the symp-
toms mentioned obtain in every case; in fact, a large proportion
of them may be absent, thus lending the greater obscurity. The
most of my own cases have either been the subject of stenosis
in other parts of the alimentary tract, showing a decided tendency
to hypertrophic inflammation in certain portions of the tracts, or
have had typhoid fever. There was a reasonably clear history
of this in all but one of the seven cases reported below.

CASE I.—Ten years ago I operated on a young lady, twenty-
six years of age, for chronic appendicitis, the symptoms of which

she had felt for twenty years. The operation was a simple one, the appendix showing marked signs of appendicitis. She made a rapid recovery, but was not one whit better than before her operation; frequent examinations, before, at, and after operation excluded the possibility of kidney, ovarian, or gall bladder disease. I am now satisfied that she was the subject of an ileocecal valve disease.

CASE II.—Eight years ago I attended Rev. H. during his final sickness, which at the time was diagnosed as a probable cancer of the ileocecal region. He had been a semi-invalid for many years. On account of nervous prostration, he was obliged to resign his pastorate and later to give up his business. For years he had shown more or less dyspeptic symptoms, and was compelled to use cathartics liberally. At post mortem we found a stricture of the ileum near the cecum, evidently the site of a healed ulcer. This had undergone malignant degeneration. On careful inquiry we learned that he had had typhoid fever before his marriage, some thirty years since. This fact, however, had never been associated in the minds of the family with his long-continued illness, although he was never really well after the typhoid. Is it not quite probable that a repair of this incomplete obstruction would have saved years of invalidism and possibly prevented the development of a malignant disease at the site of the constant irritation?

CASE III.—Miss D., aged twenty-two years, was referred to me by Dr. Gentsch. She gave a good previous history until about four months before I saw her, when she was taken with typhoid fever. She did not make as complete recovery as she ought, and it became evident that she was suffering from chronic appendicitis. September 19th, 1899, I performed an appendectomy. The appendix was long, convoluted, and thoroughly adherent to the head of the colon; after its removal the mucous membrane and subjacent tissue presented all the evidences of chronic inflammation with hypertrophy; patient made an uninterrupted recovery, although rather slow. At the time of operation the ileocecal valve was examined, but nothing very marked was discovered, although the valve seemed smaller than normal. The bowels, however, did not regain their normal function as before the typhoid, but gave her considerable annoyance; when they were worst some pain was noted in the right side, while a soft tumor would appear and disappear. Diagnosis was then made of obstruction of the ileocecal valve, but operation was refused.

The symptoms of obstruction gradually subsided; when I last saw her she was suffering with constipation, but not with the attacks simulating appendicitis with obstruction.

CASE IV.—Mrs. B., thirty-six years old, is the mother of two children, aged, respectively, eleven and nine years. She has never miscarried; at the birth of the first child she had a severe post-puerperal infection, but apparently made a complete recovery. August 20th, 1898, I operated on her for chronic appendicitis, making an intermuscular incision at the ordinary site, with no complications. On the third day she was removed from the hospital to her own home; recovery was rapid and uninterrupted.

In the Fall of 1902 she suffered from a moderately severe attack of typhoid fever; following this the very slight constipation, which she had sometimes noted previous to the typhoid, became much worse. During the early Spring of 1903 she began to have attacks which stimulated appendicitis with obstruction; these attacks were ushered in with chills, abdominal tenderness at McBurney's point, and, when severe, were associated with persistent vomiting. The only relief she could secure was through free catharsis, which was at times difficult to gain. She has now learned the premonitory symptoms of an attack, and has apparently been able to abort it by an early resort to cathartics. These symptoms are headache, general malaise, distress in the right side, associated with a moderate degree of constipation. The certain symptom which she has learned to look for has been the rising up of a soft bunch in the ileocecal region, and its disappearance, sometimes with a gurgle, sometimes without. When this train of symptoms occurs, unless the bowels can be quickly and thoroughly moved, vomiting and abdominal distress, with fever, supervene. Operation has been under advisement, but, as she has apparently learned how to abort the attack before the symptoms become too severe, operation has been postponed.

My first ileocecoplasty was performed on a colleague in the profession, a prominent nerve specialist, who made his own diagnosis, the first on record made prior to operation. His case has been an exceedingly interesting one to me including as it has a gastroenterostomy also.

CASE V.—Dr. U. first consulted me in January, 1898. For a number of years he had suffered from auto-intoxication, especially after eating meat, apples and certain other articles of diet. During the earlier years this had been accompanied by constipation, alternated with diarrhea. But at the time of the consultation the

constipation was constant, so that some cathartic must be employed at least every other day; this, in spite of the fact that he had but a few months previous undergone a valvotomy at the
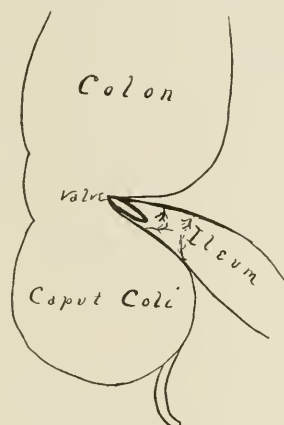
Case V.—Ileocecal valve obstruction.   Dilatation of ileum.

hands of one of our leading proctologists. Aloes and other medicines for the lower bowel were not then found to be very efficient; those acting upon the upper intestinal tract were more reliable; calomel and cascara sagrada were the principal remedies. February 19th, 1898, I made a triple operation consisting of an anterior gastroenterostomy with a jejunostomy and jejunoplication for stenosis of the pylorus, with a marked dilatation of the stomach. On the tenth day the observation was made that the stools were more nearly normal than for several years. Apparently, the bile was having an opportunity to mix with the chyle instead of being hustled along by the use of cathartics, as had previously been the case. After the gastroenterostomy he was vastly improved, both as to stomach and bowels; a year later partial obstipation returned. The cathartics which formerly had been most efficient, namely those acting upon the upper small intestines, were not now as potent as before. Enemas were not usually efficient when given in the ordinary way, but only when so given as to reach around to the ascending colon. Slight attacks of pain in the right side were present, usually associated with a sense of the presence of a tumor. This tumor could be seen to appear and disappear with rhythmic periodicity lasting only a few moments, was tympanitic and easily compressible, frequently

subsiding with a gurgle. This was evidently a hyperperistalsis
of the intestine and was not present after a free bowel movement.
He, himself, made a diagnosis of obstruction of the ileocecal
valve, with a probable coincident chronic appendicitis. I con-
curred in this opinion, both of us agreeing that the appendicitis
was of minor importance.

January 28th, 1901, I performed the operation, making the
intermuscular incision at McBurney's point. The appendix was
found to be small, but subject of chronic appendicitis. The ileo-
cecal valve was very small, barely admitting the tip of the finger,
blood-vessels were prominent, the structures in the neighborhood
of the ileocecal valve greatly hypertrophied, and the ileum was
dilated for several inches. The congestion and hypertrophy were
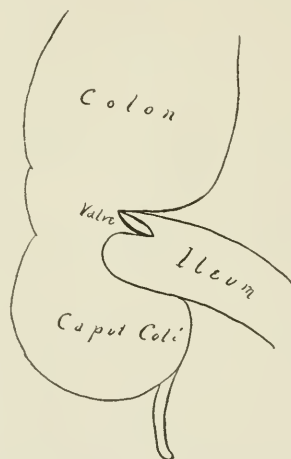
Case VI.—Ileocecal valve obstruction.
Hernia of the low lip.

apparently limited to the first two or three inches of the ileum;
dilatation extended a number of inches beyond this. Operation
consisted in making a transverse incision through the ileocecal
valve in the axis of the small intestine, a distance of some three
inches. This was sewed up in a transverse manner similar to the
Heinicke-Mikulicz operation. Recovery uneventful. Benefits of
the operation were very marked and continue up to the present
time.

CASE VI.—Miss C., while away at college in 1880, was stricken
with an acute disease probably cerebrospinal meningitis. In
1881 she was placed in Dr. Weir Mitchell's hands with the

special senses much impaired and the tendons of the feet and hands much contracted. He devotes one chapter of his Book on Nervous Diseases to her case. Dr. Keen performed eleven tenotomies for the contractures, and in the course of several years she was restored to a fair degree of health. In 1892 she again went to Dr. Mitchell on account of a relapse, but without the benefits previously received. In 1894 one of our gynecologists did an oophorectomy for hysteroepilepsy, with marked relief of the hysteroepilepsy. Her digestive functions, however, were very unsatisfactory; during the next few years she passed through several attacks of enteritis and colitis, some of them of a decided membranous character. November 11, 1898, I performed a gastroenterostomy for a stenosis of the pylorus and greatly dilated stomach. Two weeks later her father wrote me a letter from which I quote a single sentence: "I wish to congratulate you upon the satisfactory result already so clearly shown in the improvement of my daughter's digestion."

The after history of this case is very similar to that of the preceding one, except that the presence of the recurrent tumor was not nearly so marked.

April 17, 1901, I performed an ileocecoplasty; on opening the abdomen the ileocecal valve and its neighborhood were decidedly congested and the lower end of the ileum dilated. On opening the small intestine and examining the ileocecal valve, it was found that, while the valve was smaller than normal, it was only one of the factors in producing partial obstruction at this point. The compensatory hypertrophy which had taken place in the former case had failed to ensue in this case when the ileocecal valve became obstructed; instead, the lower lip of the valve had gradually dilated, producing a sacculated condition of the lower end of the ileum and bulging into the caput coli. (See Illustration. Case VI.) When the lower end of the ileum became distended this sac would also distend, and by making pressure upon the ileocecal valve tend to close it. Convalescence was very satisfactory. The bowels, which for some years had only moved after powerful cathartics, were within a week's time as regular as clock-work, and so they have remained ever since.

CASE VII.—Mr. B., aged 36 years. His health had been good until about eight months previous, when he became ill with a persistent diarrhea, followed by obstinate constipation.

August 22, 1903, operation. The appendix was found behind the colon with evidences of recent inflammation. The ileo-

cecal valve and adjacent one inch of the ileum showed deep inflammation; the serosa had lost its glistening appearance, and all the tissues at this point were greatly thickened, so much so as to seriously narrow the lumen of the intestine; the ileocecal valve and the ileum laid open; at this point, corresponding to the point of deepest congestion of the serosa, was an ulcer about one and three-quarter inches long and involving three-fourths of the circumference of the ileum. An ileocecoplasty was performed, as in the preceding cases. The after history has been all that could be desired. I have since been informed that Dr. Reed, who saw him a few times early in his trouble, thought he had typhoid fever.

The eitology in all but one of the seven cases of my own just reported is either a hyperplastic valvitis or ulceration, the result of typhoid or other diseases. Since ileocecal contraction sometimes appears coincident with the more common chronic appendicitis, and especially since many of the symptoms are identical, it behooves those of us, who are handling the knife, to make systematic examination of the valve during appendectomy.

In my opinion non-malignant obstruction of the ileocecal valve, though not more prevalent than heretofore, will be far more frequently recognized, and therefore rectified, in the future than in the past.

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ORIGINAL COMMUNICATIONS.

TUBERCULOSIS OF THE FEMALE GENITALIA AND PERITONEUM.

BY

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THE history of tuberculosis of the female genitalia dates back to 1744, when Morgagni, making a necropsy on a young woman who had died from tuberculous peritonitis, found the uterus and both Fallopian tubes filled with caseous material. The tubes and ovaries were firmly adherent, so that it was impossible to separate them, and Morgagni considered the lesions as being the primary focus of the disease. Similar observations were reported by Louis and by Senn of Geneva later on.

In 1831 Reynaud gave a description of two cases of uterine tuberculosis found in tuberculous patients. Lesions of the tubes were figured by Cruveilhier and tuberculosis of the uterus described by Kiwisch and Paulsen. Up to this time genital tuberculosis had been considered merely as a pathologic curiosity and of no clinical interest (Virchow and Rokitansky).

Brouardel, in 1865, in a thesis corrected the early information on the subject and gave a good account of the gross pathology. Koch's discovery of the specific germ of tuberculosis aroused fresh interest in the subject, which was increased by Babes finding

the tubercle bacilli in the vaginal secretions, and by the publication, in 1886, of Hegar's exhaustive and classic contribution on the pathogenesis, diagnosis and surgical treatment of the condition. We owe to Cohnheim and Verneuil (1883) the suggestion that coition might be the starting point of the tubercular localization.

During the last fifteen years many contributions to this subject have been published, prominent among them being papers by Stolper, Schöttlander, Wolff and Polano. The pathologic anatomy has been studied especially by Cornil, Monprofit, Franck, Wolff and Schöttlander.

Frequency.—Tuberculosis of the female genitals has received but little attention, if one considers the ubiquity of tubercular diseases in general. Some idea of its frequency can be gained from the following statistics:

Nimias and Christoforis found 1 case in every 12 necropsies on tuberculous women.

Schramm found 1 case in every 34 cases.

Posner found 1 case in every 35 cases.

Mosler found 1 case in every 40 cases.

Kiwisch found 1 case in every 40 cases.

Cornil found 1 case in every 50 to 60 cases.

Merletti, in 6,000 necropsies at Parma, found that tuberculosis was the cause of death in 1,360. In 205 of these the genitals were involved; in males 34 (2.41 per cent.); in females 172 (12.6 per cent.).

Hansemann (cited by Veit), however, in 7,000 necropsies at the Friedrichshain Hospital, Berlin, found 450 cases of tuberculosis in women (6.5 per cent.). In only 16 of these (4 per cent.) were the genitals involved.

Frerichs gives the percentage of primary tuberculosis of the female genitals at 6; Mosler, 19.5; Spaeth, 24.5.

According to Amann, in males 3 per cent. of tubercular lesions involve the genital organs; in females, 20 per cent. According to Still, 9.5 per cent. of tuberculous girls under 12 years of age have genital tuberculosis.

Senn (Geneva), in performing nearly 2,000 laparotomies for various indications, found tuberculosis of the female genital organs 19 or 20 times.

Out of 1,600 pieces of tissues from the gynecologic clinic in Griefswald which were examined for tubercle bacilli, they were found in 24 (Martin).

Etiology and Pathogeny.—Genital tuberculosis may be either primary or secondary. By the former we understand that the focus in the genital apparatus is the only one in the body. In favor of primary genital tuberculosis are the facts that:

(*a*) Otherwise strong, healthy people have primary manifestations in the genitalia;

(*b*) After the removal of the local genital focus, patients remain well for years;

(*c*) Children otherwise apparently healthy, have primary tuberculosis manifested only in the external genitalia.

The primary form is less frequent than the secondary. Some authors (Scanzoni, Klebs) absolutely deny the possibility of this form; others (Lebert) consider it to be very rare. On the other hand, Schramm, in his 34 cases of genital tuberculosis, found 1 primary. Spaeth, in 119 cases, found 27 primary (24.5 per cent.), Mosler, in 46 cases, found 9 primary (19.5 per cent.), while in 15 cases noted by Frerichs, 1 was primary.

The secondary form is frequent in phthisis. Thus Turner met it in 5 out of 27 necropsies on cases of chronic phthisis at the Brompton Hospital. In 7 more there was catarrhal salpingitis, the tubes looked suspicious, but no naked-eye appearances of tuberculosis were found. Stolper, in 34 necropsies on women dying from pulmonary tuberculosis, found tubercular lesions of the genitalia in 7 (80.5 per cent.).

We owe to Hegar the theory of two forms of genital tuberculosis in the female—an ascending, which is generally primary, and a descending, which is generally secondary. For the production of the primary, the two following possibilities must be taken into account, according to Hegar: (1) Penetration of germs from the outside directly to the mucosa of the vagina, uterus, tubes and finally the peritoneum and ovary; (2) Penetration of germs through minute breaches of continuity in the genital canal, into the lymphatics, thence to the Fallopian tubes directly, or against the lymph current as we see it in the neck occasionally, or by way of the pelvic peritoneum into the tubes at the fimbria.

Amann remarks that in addition, the cryptogenous forms (those in which the genitalia are the only localizations of long latent tuberculosis, or in which the bacilli, penetrating the blood-stream or lymph-current, cause lesions of the genital tract alone), may be considered primary.

The sources of bacilli in the production of genital tuberculosis

in general may be classified as hematogenous, lymphatic, contiguity of tissue and continuity of surface.

Bouilly, in a communication to Amann, gives as his opinion that infection is most often of hematogenous origin; he himself does not know of any case of direct contagion.

According to Kleinhans, there are three arguments in favor of infection by means of the blood current:

(1) The existence of tuberculosis in the genitals following tuberculosis of the lungs, with no intermediate foci;

(2) The frequent localization of tuberculosis on the site of the placental attachment;

(3) The transmissibility of the bacilli from the mother to the fetus.

To these Veit adds the sudden eruption of acute general miliary tuberculosis, which has been many times noticed to succeed the existence of a markedly circumscribed focus.

Voigt, however, calls attention to a fact which in his opinion negatives transmission by the blood current, namely, the frequent occurrence of genital tuberculosis during the period of sexual activity. Hence, he is of the opinion that there is more reason to suspect direct ascending infection. (In my experience it is quite as common before puberty, but less frequently recognized.)

Direct infection may occur from dirty instruments, bed linen and clothing, the accoucheur's or patient's fingers, and especially from coitus

In 1882 Cohnheim asked if the semen of tuberculous individuals with absolutely healthy genitals may not contain the tubercle bacilli. A little later Verneuil declared that a tuberculous male with sound genitals is capable of transmitting tuberculosis by coitus. It is a question how he knew they were healthy, as it is very difficult to determine tuberculosis of the seminal vesicle. Verchere reported two cases of this kind, and Fernet made a systematic examination of the tuberculous patients who were under his care during a year's service. He communicated the results to the Hospital's Medical Society of Paris and confined his remarks to cases where the genital tuberculosis was evidently or probably primary. With these limitations, he found two in which it was evidently due to coitus with tuberculous men. Derville mentions three males who died of phthisis, without involvement of the genitals, yet tubercle bacilli were found in the semen. An analogous case is narrated by Foa.

In support of the direct transmission by coitus, I shall cite the following case which came under my observation: Mrs. L., aged 32, whose husband had been treated by me for three years for tuberculosis; first tubercular empyema, second, tubercular osteitis of the spine, and for eleven months preceding the appearance in Mrs. L., he had suffered with tubercular epididymitis, with tubercle bacilli in the semen and urine. Mrs. L.'s illness dates from four months previous, when she had her initial attack of pelvic peritonitis. She had recurrent attacks of this inflammation every three to six weeks, accompanied by severe pain, elevation of temperature, great sensitiveness in the pelvic peritoneum. The tubes were enlarged, and there was some fluid in the pelvic peritoneum. The uterus was not fixed; the fornices were not infiltrated, but there was a stiffness of the peritoneal folds. Diagnosis, tuberculous peritonitis and tuberculosis of the tubes, with no evidence of tuberculosis in any other portion of the body. Operation; section revealed enlarged tubercular tubes, both fimbriated ends patulous, with pronounced ectropion of the mucosa. Hard, caseous masses in each tube about three-quarters of an inch from the cornu of the uterus; these masses appeared to be the primary foci in the tubes. The cul-de-sac had confluent tubercular eruptions; as the distance from the fimbriated end increased, the number of tubercles on the peritoneum diminished. The peritoneum and intestines were free from tubercles above the promontory. The tubes were removed and the abdomen closed; complete recovery and patient has remained well for the last nine years.

While this would appear as a direct transmission with only a genital and peritoneal involvement, I have seen so many cases of tuberculosis of the epididymis with tubercle bacilli in the urine and seminal discharge in married men without the wife becoming infected, that I must conclude that other conditions are necessary for the development of the tuberculosis in the female genital tract.

In some cases, notably that of D'Aubeau, the discovery of bacilli in the semen without any lesion of the genitals, was the first evidence of unsuspected pulmonary tuberculosis. Curt Jani was unable to find bacilli in the seminal fluid of tuberculous patients. Pursuing his investigations further, however, he found them in apparently healthy testes and prostates (6 out of 8 testes and 4 out of 6 prostates). This probably accounts for many of the erroneous diagnoses of tuberculosis of the bladder and testicles made on the basis of bacilli found in the urine.

Amann refers to Mammer's case as one of the most striking examples of this mode of infection. A woman of 35 died from general miliary tuberculosis four years after marriage; at the necropsy the only tubercular focus was a caseous Fallopian tube; the uterus and vagina were not involved. The husband, who came from a tuberculous family, had both apices involved, although there was no trace of disease in the genitalia; he was accustomed to lubricate the parts with saliva to facilitate intromission.

Pfannenstiel and Merletti each report one case and Prochownik two of genital tuberculosis where the husbands had tuberculosis of the testicle. In Kehrer's case, the patient died from a postpartum genital tuberculosis, and her husband died soon after from genital tuberculosis also.

Similar cases, in which the husband was tuberculous and the wife healthy, are described by Keppler, Strassman, Hofmeier, Rein, von Franque, Menge, Pincus and 7 by Jacobs (Amann).

Experiments on animals have been undertaken by a number of observers, e.g., Landouzy and Martin took semen from a tuberculous patient whose testicles were apparently healthy (they do not state the condition of the seminal vesicles), and after diluting it with a one-half-per-cent. solution of sodium chloride, injected it into the peritoneal cavity of 15 guinea pigs. Five of the animals died from tuberculosis. Similar results were obtained by Sirena and Pernice and by Solles.

Maffucci, after injecting large doses of tubercular cultures into the saphenous vein of animals, found tubercle bacilli in the testes and their secretion. Jaeckh introduced fragments of testes from tuberculous patients into guinea pigs and rabbits, and, killing them in two to three months, found three out of five guinea pigs tuberculous; the rabbits were not affected.

Gaertner made a series of experiments to see if bacilli would be transmitted from the parent to the fetus. After inoculating the testes of rabbits and guinea pigs with tubercular material, he found that a number of females fecundated by these males became tuberculous, with marked lesions of the uterus and vagina. In 65 female guinea pigs, 5 died from tuberculosis starting in the vagina; tubercles were found in the lungs, liver and spleen; the vagina was filled with yellow, caseous masses swarming with bacilli. Lymphatics infiltrated with tubercles were rare towards the peritoneum; of 59 rabbits, but 9 presented the same appearances.

Spano examined the semen of seven individuals dying from tuberculosis (six in the lungs, one in the hip), microscopically as well as by cultures and inoculations. Negative results. In another series of 6, the results were positive. In 2 of these, bacilli were not found in the semen on microscopic examination, and inoculations into the peritoneum and in the vagina, after irrigation, were successful in 2 out of 3 animals.

Peraire injected pure cultures from the secretions of tubercular endometritis into the vaginæ of rabbits and observed tubercular metritis and endometritis as a consequence. Cornil and Dobroklonsky also injected tubercular culture into the vaginæ of guinea pigs, taking great care not to wound the mucosa. The animals were killed after intervals of from four to thirty-two days, and in those killed after fifteen days tubercles were found in the uterus.

Oncarini, however, obtained negative results. This observer first produced lesions of the vagina in guinea pigs by injecting tincture of iodine; then he introduced pieces of tissue from tubercular salpingitis. General tuberculosis was produced in all the animals, but in none were genital lesions discovered. A pregnant female gave birth to a young one, which died in three weeks from tuberculosis of lung, spleen and liver.

Popoff, in a series of experiments on guinea pigs, divided the animals into three series. In the first series of eight, tubercle bacilli were simply deposited in the vagina without any traumatism; negative results. In the second series of four, the vaginal mucosa was wounded with a needle until hemorrhage ensued, and thirty minutes later cultures of tubercle bacilli were injected. Tubercular lesions ultimately developed at the points wounded. In the third series of four, trauma was produced by the injection of irritants (iodin, turpentine, etc.), and cultures injected 48 hours later. Tubercular lesions developed in the inguinal and retroperitoneal glands and the genital apparatus, but nowhere else. As a result of his experiments, this author concludes: (1) It is impossible to infect the genital organs unless there is some preceding trauma. (2) In cases of tuberculosis following traumatism, the lesions remain localized in the genital apparatus and its lymph glands.

Marie Gorovitz reaches similar conclusions from her experiments on 11 rabbits and 15 guinea pigs, using pure cultures of tubercle bacilli diluted with sterile boiled water. She concludes: (1) Simple deposit of the bacilli in the vagina without trauma

will not give rise to tuberculosis. (2) Deposit of bacilli in the uterine cornua of the guinea pig produces tuberculosis which may be propagated to the vagina or first reach the iliac or lumbar glands, especially at the bifurcation of the lumbar aorta, which are nearly always caseous. (3) In some cases, the bacilli seem to pass through the uterine cornua without causing any macroscopic lesion and directly invade the lumbar glands. (4) Tubercular peritonitis may be observed secondary to tuberculosis of the uterine cornua, and seems consecutive to subperitoneal lesions of this organ. (5) In rabbits, inoculations made with the same technic as in guinea pigs were unsuccessful.

Gaertner considers infection by coitus rare, for he claims that if it were frequent the glans penis and urethra would often be found tubercular, while in actual practice this is exceptionally the case.

Another argument against this as the only mode of infection, according to some authors, is furnished by cases occurring with colpatresia.

For example, H. Thompson reports the case of a girl of 15 with atresia. The vagina was distended by a turbid liquid, there were miliary granulations on the cervix and caseous nodules on the pelvic peritoneum, besides tuberculous bronchial glands.

Gersung extirpated the uterus, adnexa and part of the vagina in a woman of 19 with congenital colpatresia. The vagina and distended uterus contained over three litres of greyish-yellow liquid. The mucosa of the tubes, uterus, and especially the vagina, was caseous and contained giant-cells. The tubes, though short and presenting nodular thickenings, were permeable at the orifices.

Most authors deny the congenital infection of Baumgarten, except in very young children.

Fers reports a case which seems to prove the transmission of tuberculosis to the fetus. Schmorl and Kochel have more than once discovered tubercle bacilli in the placenta, and in a child 30 hours old, whose mother died of tuberculosis, Bugge found bacilli both in the umbilical and hepatic vessels.

Any disease which causes abnormal secretions, as gonorrhea, for example, lessens or destroys, or, better, they produce the necessary abrasion for inhibiting the bactericidal action of the vaginal mucus. The frequency of post-partum tuberculosis shows that the puerperal state, with its attendant traumatism, is a common source of primary infection. Thus, in 16 cases of miliary tuber-

culosis which appeared during the puerperium, cited by Merletti, in five caseous foci were found at the ends of the tubes. In Orthmann's 23 necropsies on genital tuberculosis, eight were of the miliary variety (Duhrssen's) and several of these had commenced during the puerperium.

Even operative intervention may give rise to the disease, as in Duhrssen's case (cited by Amann), where catheterism of the uterus to overcome sterility, led to acute tuberculosis of the tube and peritoneum. Attention may also be directed to Carbonelli's case, where general tuberculosis ensued fifty days after an operation for tubercular ovarian cyst.

Extension from the intestine is looked on by Naegeli as exceptionally rare, since the mesenteric glands are so rarely involved. Amann, Hegar and Von Rosthorn have also noted the absence or but slight involvement of the retroperitoneal glands. Amann, however, calls attention to three cases met with by Duhrssen. In three patients, adhesions between tubercular loops of bowel and the Fallopian tubes led to secondary tuberculosis of the latter. As all three patients drank much raw milk, Duhrssen investigated the source of the milk and found the cow tuberculous. In this connection, Strassman's cases of genital tuberculosis in butcher's wife and in a girl looking after the cows on a farm are of interest.

(We have observed, in two cases, the adherent fimbriated end of the tubercular tube communicating with the intestinal tract, with tubercular ulcer of the intestine at the point of union. This we interpreted as a primary tuberculosis of the tube with secondary ulceration of the wall of the intestine and tubercular infection at that point. Again, in not a small number of cases circumscribed tubercular abscesses communicate with the tube and with the intestine. In all of these cases also, we have attributed the primary lesion to the tube, as in all of them the other tube was involved, and in two the fimbriated end of the other tube was open and no mixed infection, though the tube was tuberculous.)

While genital tuberculosis is common after the menopause, Kaufmann directs attention to senile involution of the cervical tissue in old women as favoring the production of the condition. In a necropsy on a woman of 77 years, presenting no traces of tuberculosis elsewhere, an ulcerated cervical lesion was found which had the gross appearance of carcinoma, but proved, on microscopic examination, to be tuberculosis.

The order of frequency with which the organs are involved is:

Tubes; uterus; ovaries; vagina and vulva. A single segment may be involved (although this is rare) ; on the other hand, cases are reported where the whole genitalia were attacked; *e. g.*, those of Geil, Gusserow, Kretz, Frerichs, Davidsohn and five by Voigt.

Diagnosis.—Martin emphasizes the fact that *up to the present time we know of no pathognomonic clinical symptom of genital tuberculosis, and especially of its chronic form.*

Hence the anatomic diagnosis can be established with certainty only by the discovery of the specific bacillus of tuberculosis. The search for this must be undertaken in every case where there is reason to suspect its presence. As in other forms of local tuberculosis, and especially in chronic cases, the bacilli may be very few in number (only one in forty-seven slides). However, a systematic examination of scrapings and discharges for the bacillus will reveal its presence in a surprisingly large number of cases, as mentioned above. The search for the bacilli being so difficult, some authorities are content with the discovery of typical tubercles. The great similarity of the smegma bacillus to that of tuberculosis must not be lost sight of.

For finding the tubercle bacillus, Alterthum prefers the Kuhne-Bordel method. This consists of coloration of the nucleus with hematoxylin and hematin, washing in water, then coloration in Ziehl's phenic-fuchsin for fifteen or twenty minutes. Differentiate by passing through a 2-per-cent. solution of hydrochlorate of anilin for a few seconds, decolorize cautiously with alcohol, lastly xylol, etc.

Babes, in 1883, was the first to discover the bacilli in vaginal secretions, and they may be sought for either by the microscope or by the culture method. Veit recommends inoculation in animals in addition, especially guinea-pigs, which he considers preferable to simple examination. Inoculation may be made from vaginal secretions or from aspirated peritoneal fluid. This inoculation is one of the most reliable tests for tuberculosis and is neither difficult nor slow in giving results and should be resorted to in every case.

Bimanual examination is not very conclusive, though Hegar and his school insist on the diagnostic value of the nodes found on or in the utero-sacral ligament. (For the conflicting views as to the nature of the nodes on the free ends of the tubes, "salpingitis isthmica nodosa," see section on tubal tuberculosis.) According to Veit, adhesions due to tuberculosis are, as a rule, rather easily

distinguished from those of gonorrheal origin, being much more extensive.

In doubtful cases, the general systemic examination becomes of great importance, especially a detailed study of the clinical history. In Senn's experience, the use of the thermometer has been of great diagnostic value in tubal tuberculosis. He states that "a constant slight rise in the evening temperature, and a normal or slightly subnormal morning temperature, are very suggestive of the tubercular nature of the tubal affection."

Veit, who regards genital tuberculosis as generally secondary, believes the principal object of the clinical diagnosis is to determine whether the infection is limited to the genitalia, or affects other organs also.

Martin directs attention to the frequent coincidence found of late between tubal pregnancy and tubal tuberculosis, which he considers of great interest from a diagnostic standpoint. He believes we are justified in supposing the former to be a consequence of the tuberculosis and when confronted with tubal pregnancy we must bear tuberculosis in mind.

Symptoms.—These are neither numerous nor characteristic. In Martin's cases, sterility was the most prominent symptom. Only one of his twenty-four patients with genital tuberculosis became pregnant during the course of the disease, and twelve others had few or no children. The contrast, he states, is the more striking since many had gone through a series of pregnancies.

Menstrual disturbances are slight, especially at the onset. Later on, after the inner surface of the uterus has become caseous, there may be amenorrhea. In other cases there may be menorrhagia.

Menorrhagia in young girls should always arouse the suspicion of tuberculosis, and careful and repeated microscopic and inoculation tests should be made, both during the period and in the interim. The presence of menorrhagia has been valuable in many cases in leading to the diagnosis of tuberculosis of the genital tract.

Vassmer, in six cases of uterine tuberculosis, observed no discharge. In some cases, however, there is an abundant mucopurulent discharge, with passage of caseous masses. Even then, there is nothing characteristic about the discharge, unless bacilli are present.

Pain is not complained of by most patients, except occasionally in tubercular salpingitis.

Prognosis.—While the prognosis in tuberculosis of the genitalia and peritoneum is always very serious, the disease is not at all as

fatal when properly treated surgically, as we have been led to be‑ lieve. In the first place, spontaneous cure is possible, though un‑ doubtedly uncommon; again, a localized focus is favorable for extirpation, as proved first by Hegar and by numerous operators since. The prognosis will depend on whether there are tubercular lesions elsewhere and their extent. If the disease in the genitalia is secondary to lesions elsewhere, the genital complication does not seem to add to the gravity of the original disease. In cases occur‑ ring in the puerperal state, death may ensue with extraordinary rapidity. Other things being equal, the results of surgical treat‑ ment are very satisfactory. So much for the general considera‑ tion. We will now analyze the individual types of the disease as it manifests itself in different portions of the genitalia and peri‑ toneum.

SECTION I.   TUBERCULOSIS OF THE VULVA.

This is the most infrequent variety of genital tuberculosis, in fact it is so rare that Spaeth was unable to find a single case of primary tuberculosis recorded, up to 1885. This infrequency of the disease in a region easily accessible to external infection is looked upon by some writers as an argument in favor of the de‑ scending, or secondary route. It is, however, more probable that the bacilli pass over the external genitals and find a more appro‑ priate soil in the internal organs—uterus, ovary, and especially the tubes. While rare, there are several well‑authenticated cases of vulvar tuberculosis.

Cayla reported a case of extensive ulcers of the labia and va‑ ginal orifice. The numerous nodules, on microsopic examination, showed the characteristic structure of tubercles. The lungs were involved also.

Deschamp's patient also had advanced pulmonary lesions. She was 25 years of age and some months before had sustained an injury to the vulva by a fall; shortly after leucorrhea and intolera‑ ble pruritus appeared. There was deep ulceration of the left labium minus and the fourchette. Pieces of tissue showed the typical appearances of tubercle and on being inoculated in guinea‑pigs the results were positive. Death occurred in seven months from the time of the injury and tuberculosis of the lungs and external genitalia were found at the necropsy.

Chiari reported a case in a woman of 30. There was pulmonary tuberculosis as well as extensive tubercular ulcers in the rectum. Necropsy showed the internal genital organs were not involved.

A large ulcer of the vulva was present, which had involved the vagina also.

Deuse reports three cases of primary tuberculosis in children: I. Child 13 months old; ulcer situated on inner aspect of left labium minus. The secretions from this contained numerous tubercle bacilli. Death at 16 months from tubular meningitis. In addition to the ulcer of the vulva, a more recent one was found in the vagina also containing bacilli. II. Child of 7 months with tuberculous father; ulcer situated at orifice of vagina. III. Child of 15 months with good family history. A muco-purulent discharge appeared after an attack of measles; ulcer at orifice of vagina; tissue proved tuberculous by microsopic examination. Died from tuberculous pneumonia; tubercle bacilli were found in one of the iliac glands.

In Zweigbaum's case the vulva was attacked by an ulcer of the vagina extending to the former. Death occurred from pulmonary tuberculosis and the uterus and appendages were not involved.

Viattel reports the case of a woman of 36 who had had a yellowish discharge from the vagina for seven years. For three years she had noticed little growths on the vulva which frequently fell off and reappeared. These growths were found to cover an ulcer bordering the vagina, with a firm base and covered with a yellow crust in places. The growths contained no bacilli, but many were found in scrapings from the ulcer.

Montgomery's case was a negress of 30. Family history and childhood negative; four children, one miscarriage. Burning on urination, extending back for years. Labia enlarged, ulcer on inner aspect with indurated borders; induration extended over anterior wall of vagina and about the urethra. Microscopic examination of a fragment excised showed characteristic tubercle formation.

Schenk reported a case in a little girl of 4½ years. There was an ulcer of the vaginal orifice, which had involved the left labium minus, the clitoris and the urethra; the inguinal glands were enlarged. The child had two tuberculous play-mates and Schenk thinks infection probably occurred through the fingers.

Davidsohn's case concerned a woman who had an excessively hard labor. Two days later, acute miliary tuberculosis appeared and proved fatal in three weeks. At the necropsy, the entire vagina, as well as the labia minora, was strewn with recently formed miliary tubercles. The cervix and urinary passages were not in-

volved. The diagnosis was confirmed by both histologic and
bacteriologic proof.

In Karajan's case, a little girl of two years, with good family
history and no signs of visceral tuberculosis, developed pruritus of
the vulva with a coincident ulcerative keratitis. Shortly after,
a progressive vulvar ulceration occurred; the skin was red, ex-
coriated and covered with crusts. On separating the labia, a
tumor was seen, corresponding to the clitoris, firm, the surface
covered with small ulcers the size of a pin-head, and with a thick,
eczematous crust over all. Elephantiasis of the clitoris was diag-
nosed and the tumor exirpated. Ten months later, a new vulvar
ulcer appeared, with enlarged inguinal glands. Another tumor
had appeared in the scar of the operation; this was again extir-
pated. The excised tumors were composed of connective tissue
covered by normal skin, with tubercles irregularly distributed be-
low the derma. Bacilli were found, though few in number.
Scleroderma, with small ulcerations here and there, of the external
genitalia, should arouse the suspicion of tuberculosis and a most
careful search should be made for its characteristic pathologic
changes.

Reick reports a case in a woman with good family history, but
whose husband died of pulmonary tuberculosis. There was an
ulcer of the vulva with hypertrophy of the labium minus. Exci-
sion; tissue showed tuberculous lesions.

In Kelly's case, a patient of 55 complained chiefly of the sting-
ing pain caused by the urine flowing over the ulcerated vulva. The
disease involved the vestibule and the central portion was eaten
out; the deeper tissues, while infiltrated were not especially in-
durated. A few bacilli were demonstrable. On histologic ex-
amination, the surface was found to be made up of the characteris-
tic granulations, with scattered tubercles through the deeper tis-
sues, some located immediately below the urethral mucosa.

Kuttner reports the case of a little girl of 6 with bronchial
catarrh. The sputum contained tubercle bacilli. There was in-
duration of the right labium majus, with an ulcer in the upper
two-thirds; there were also some small ulcers over the mons vene-
ris and the upper part of the left labium majus. Excision, suture,
cure. Examination of the excised tissue and the tributary lymph
glands showed the characteristic tubercular lesions.

So it will be seen there are numerous cases of tuberculosis of
the vulva on record and they would be materially increased if cases
described as esthiomene, lupus, rodent ulcer, etc., were included,

as they should be. Esthiomene was first described by Huguier, of Paris, who reported nine cases in 1848. The French school looked on it as a scrofulous manifestation. The English surgeons of the same period regarded it as a "noli me tangere" belonging to the epitheliomata. For instance, Paget, after examining some tissue said: "When a specimen for examination microsopically was taken from the substance of the base immediately beneath its surface, I found nothing but the natural tissues of the mucous membrane (rete malpighii) with infiltration or inflammation with reparative material. If taken from the surface, on examination of the ulcer during life, they would have led to epithelial cancer."

Pathologic Changes.—Since the structure of the vaginal mucosa is practically the same as that of the surrounding skin, the pathologic changes resemble those in tuberculosis of the skin itself. We have a diffuse chronic inflammation with perivascular infiltration of small round-cells. Epithelioid and giant cells are found on section. The specific bacilli are also found, but few in number, and can sometimes be discovered only after examining a number of sections. In the older parts of the lesion, the bacilli may be entirely wanting. In the appearance of the ulcer, it often resembles a carcinoma or epithelioma of the labium. In the former there are frequently small healed areas, while the latter never has healed areas.

Clinical Course.—The onset is in the form of a dull red or livid discoloration of the skin, which is indurated and slowly increases in size. After a variable length of time, these tumor-like masses soften and break down, forming ulcers. These ulcers vary considerably in size, are round, oval or irregular in shape. The edges are infiltrated at first, later on ragged and undermined. The base is uneven, granular and covered with a yellow crust. Miliary tubercles are often seen about the borders. The ulcers do not bleed readily and show no tendency to heal, but advance slowly or heal behind as they advance. After a time, from coalescence, an extensive destruction of tissue may take place, with fistula formation and destruction of the perineal body. In other cases, there is great proliferation of tissue, with formation of nodules and polypi. If the disease involves the clitoris, this may be so enlarged as to be mistaken for elephantiasis. The inguinal lymph glands are not involved for a long period.

Pain is not noticeable and the first symptom noticed, as in Kelly's case, may be pain on urination after a well-defined ulcer is

present. In many cases, the disease is of such slow growth that it remains unnoticed for years.

Diagnosis.—The only diseases likely to prove difficult of differentiation are syphilis, phagedena and carcinoma. In some cases the distinction is very embarrassing, even after a careful anamnesis. As before stated, the inguinal glands are not often involved in tuberculosis; this and the multiplicity of the ulcers and the negative results of specific treatment will distinguish it from syphilis. From carcinoma, it can, as a rule, be told by the exceedingly slow progress of the disease. In many cases, resort must be had to microscopic examination of pieces of excised tissue, search for the bacilli and animal inoculation with the secretions.

Treatment.—The only treatment of any avail is radical extirpation. Escharotics, such as iodin, the thermo-cautery, cauterization with chromic acid crystals or zinc chlorid solution 40 per cent. to 50 per cent., may be used in mild cases, but the disease almost inevitably returns. The tuberculous tissue must be completely excised and the parts sutured. In case of extensive loss of tissue, plastic operation may be called for after the excision. The X-ray should avail here as in superficial carcinomata, but experiences to date are very limited and results problematic.

SECTION II. TUBERCULOSIS OF THE VAGINA.

As regards frequency, this form is usually found in association with similar lesions in the upper portion of the genital tract; it has, however, been discovered in several instances to be the only site of tuberculosis in the genitalia. There seems to be but one case of primary tuberculosis of the vagina known, that of Bierfreund, in which a tubercular ulcer of the vagina was the sole focus in the entire body.

According to Amann, it may arise in the following ways:

(*a*) The infection comes directly from the uterus, vulva, rectum, bladder or by recto- or vesico-vaginal fistulæ, or through Douglas' pouch from the peritoneum. (Babes in 1883, reported a tubercular ulcer in the rectum which perforated the recto-vaginal septum, giving rise to secondary tuberculosis in the vagina.)

(*b*) From contact of uterine and tubal discharge containing tubercle bacilli, or from an infection by the feces (and urine— Virchow), after fistula formation.

(*c*) Directly through the blood-current.

(*d*) Direct infection from without.

H. Thompson, many years ago, reported the case of a girl of fifteen, who, after being in apparent good health, died suddenly after an illness of about seven days. Miliary tubercular lesions were found in the lungs, diaphragm, liver, spleen, kidneys, and meninges. The hymen was imperforate and the vagina was dilated into a pouch eight inches in circumference, containing 25 or 30 fluid ounces of "dark, grumous, offensive material." The fundus and cervix uteri were covered with tubercular granulations. The vaginal mucosa was very vascular and also infiltrated with tuberculous granulations.

Breisky mentions the case of an aged woman who had tuberculosis of the vagina and was operated on for an ovarian cyst. Microscopic examination of the latter showed tuberculosis of the cyst walls.

In Zweigbaum's case, there was tuberculosis of the vagina in addition to the vulva and portio vaginalis. On the posterior wall of the vagina was an ulcer with hard, raised borders. This was covered with thick, grayish-yellow mucus; a similar ulcer was found on the cervix. The uterus was enlarged and tender, the inguinal lymph glands swollen and hard but not painful. The lesions, later on, involved the left labium minus and destroyed it entirely. The tubercular nature of the process was confirmed by microscopic examination.

An interesting case was met with by Weigert in the cadaver of a woman of 67. In addition to a tubercular ulcer of the ileum and peritoneum, the vagina presented tubercular lesions in all stages, from miliary granulations to caseous degeneration of ulcerations; yet the uterine mucosa was completely intact.

Sippel reports the case of a virgin of 20, in good health but with hereditary history; extirpation of a caseous tube and tuberculous ovary; tubercles were found on the adjacent peritoneum. Later on, tuberculosis appeared on the other side on the uterine mucosa; partial extirpation of the adnexa on this side and treatment of the endometritis resulted in a cure of two and a half years' standing when reported. This author believes there was infection of the vagina, then of the uterus and next of the tubes. He sees in menstruation, during which the superficial epithelium is eliminated and the resistance of the vagina increased, a protection against uterine invasion.

Jorfida narrates the case of a woman with no family history, and whose husband was healthy, who, soon after delivery, presented a tubercular ulcer of the vagina with consequent glandular

infection and no signs of the disease elsewhere. In this case the probable source of infection was a woman dying of the pulmonary form whom the patient visited. Bacilli were found in the vaginal secretions and in the ulcer, and probably gained entrance through the lacerations incident to delivery. A cure resulted after curetting and the use of the cautery.

Springer, who reports a series of twelve cases of secondary vaginal tuberculosis, found but two evidently due to blood infection; in the rest it was due either to extension by contiguity, or to contamination by secretions or tubercular masses proceeding from the uterus and tubes.

Pathogeny.—The miliary variety seems to be less frequent than the ulcerative, though miliary tubercles are nearly always found in the vicinity of the ulcers. The latter are either shallow or deep, with a flat floor, covered with a grayish crust. Here as elsewhere the ulcers frequently become confluent, with consequent increase in the loss of tissue. As before stated, in Babes' case a tubercular rectal ulcer penetrated into the vagina. On the other hand, the process may extend in the opposite direction from the vagina into the bladder or rectum, and give rise to fistula and secondary foci in these organs.

Symptoms and Diagnosis.—The symptoms present nothing pathognomonic and the diagnosis, owing to the accessibility of the lesions, is attended with less difficulty than when deep seated. Here again it is to be differentiated from syphilis and malignant disease, and here, also, we must rely on the aid afforded by specific treatment and by microscopic examination of excised tissue and staining and inoculation of secretion. In this variety, the discharge seems to appear early and it is frequently yellowish. The ulcers are both insensitive and bleed with difficulty.

Treatment.—In the milder cases, the application of chemical agents as chromic acid or curettement may suffice. In the severe ones, more vigorous measures are necessary, even partial or complete removal of the uerus, with vaginal wall when the ulcers are numerous about the posterior fornix, as they sometimes are.

(To be continued.)

A PSEUDOHERMAPHRODITE, IN WHICH THE FEMALE CHARACTERISTICS PREDOMINATED; OPERATION FOR REMOVAL OF THE PENIS AND THE UTILIZATION OF THE SKIN COVERING IT FOR THE FORMATION OF A VAGINAL CANAL.

BY

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(With four illustrations.)

THE possibility of hermaphroditism has always appealed to the imagination of the profession with peculiar interest—curiosity as to the sensations experienced by an individual capable of enjoying the sexual emotions of both the male and the female at the same time may doubtless account for it. But this will-o'-the-wisp has led investigators into many fruitless discussions.

The successful demonstration of the existence of a true human hermaphrodite grows more and more remote as our instruments and methods of investigation become more precise. Cases are on record in which the external organs of generation in a single individual have borne striking resemblance to those of both sexes. More than this, cases have been authentically reported in which an individual has been known to live a certain number of years as husband to a woman and later an equal number of years in the relation of wife to a man. No offspring have ever been produced in this dual relation, nor has any individual ever been known to impregnate himself or herself.

The essential organ of generation, and that which must in the final analysis determine sex, is the presence of the testicle in a man and the ovary in a woman. A true hermaphrodite must possess both these organs. Applying this crucial test by the most approved modern instruments and methods, most of the cases have been conclusively thrown out of court.

Accepting Klebs' classification we may have *theoretically* three forms of true hermaphroditism:

1. Bilateral, where the four organs are all present, a testicle and an ovary on each side.

2. Unilateral, where one ovary and one testicle are present and both on the same side.

3. Lateral, where on one side there is a testicle and on the other an ovary.

No case of unilateral has ever been reported. The cases of the older writers usually fall under the head of bilateral. These are all of doubtful authenticity. They were not submitted to careful and searching autopsy. The celebrated case of Katharine Hohmann must be relegated to the list of pseudohermaphroditism. According to the latest evidence the pretended menstruation was the result of a trick by which a recurrent nose-bleed was utilized to furnish blood with which to smear the genitals previous to examination. Pozzi furnishes evidence to prove that no autopsy was made in this case, as had been wrongly asserted. The case of Heppner, of St. Petersburg, has been subjected by Pozzi to critical analysis. The subject was an infant of two months with the external organs of the female or perineoscrotal hypospadias. The uterus and tubes and ovaries were well developed and normally situated, and there was an additional gland which on gross inspection resembled a testicle. It was attached to the shrivelled Wolffian body, which was situated between the fundus and the ovary. On microscopic examination it contained structures resembling those found in the rudimentary testicle, but not distinguishable from those of the rudimentary ovary. Investigators Heppner and Slavjansky are not agreed as to its classification. In this connection it is well to remember, as Zweifel remarks, that the primitive condition of the ovary so closely resembles that of the testicle in the same stage of development that it is a matter of the greatest delicacy to decide between them. To establish the dual condition the positive evidence must be convincing and indisputable, for the balance of probabilities is against it. These two cases with a third, that of H. Meyer, compose the three latest and best authenticated cases on record, and yet in no one of them is the evidence convincing. The third case, that of the male type with undoubted testicle, on autopsy revealed a small body resembling an ovary, which, according to Pozzi, was probably an atrophied testicle. We may therefore, I think, accept the dictum that a true hermaphrodite of the human species—*i.e.,* an individual with functuating glands of both sexes provided with excretory ducts—has never been discovered. This condition is common in

the batrachia, at least one species of fish, and in toads. It has
been seen in the goat, the pig, and rarely in the dog. But let us
hope that man has reached such a stage of development in his
ascent from his lower forms that no example of such degeneracy
may ever be found.

The case of pseudohermaphroditism which I have to present is
of special interest on account of the operative procedure which I
instituted and performed, and which effectually eradicated all
semblance of duality of sex and placed the young patient safely
in the ranks of womankind, where she desired to be. The patient
was referred to me February 28, 1903, by the family physician
living in one of the suburbs of New York, and gave the following
history :

E. C., aged twenty years, born in New York State, of Irish
parentage ; father and mother both living, also four brothers and
four sisters, all of whom, as far as she knows, are strong and well
and normal in every way. Patient has never menstruated ; was
strong and well till four years ago ; weighed 120 pounds, but has
gradually lost flesh year by year, and now weighs only 99 pounds.
She was educated in the public schools and graduated from the
grammar school two years ago ; has a weak stomach and occasional
attacks of indigestion. She has never had any girl love affairs
or been attracted passionately by any girl, but has been attracted
by boys ; says that "that thing" (the clitoris) began to develop
to a noticeable degree when the hair began to develop on the pubes,
fourteen to fifteen years of age ; played with it some at that time
and experienced pleasurable sensations therefrom ; has erections
at times and at first feels that it is pleasant, but eventually dis-
appoints and annoys her ; wants to get rid of "the growth." In
deportment the patient was somewhat shy and modest, and gave
the impression that she did not care to reveal the facts she had
stated, but was determined to get relief, and had decided to go
through whatever ordeal was necessary to secure it. She came
to my office alone, and heavily veiled to conceal the growth of
hair upon her lip, face, and chin. In appearance she showed
feminine taste in dress, which was neat and in good style.

PHYSICAL EXAMINATION.

Height, 5 feet 1⅞ inches.
Weight, 100 pounds at present.
Gait, feminine in character.
Voice, feminine, with occasional male tendency.

Hair growth on the head coarse, abundant, and black; eyebrows black and heavy, meet between the eyes; hair on upper lip well developed; on chin well developed; also strong growth in front of ears to angle of jaw. Growth is sparse between angle and chin. Chin is square and jaw heavy, otherwise face is female type; features are small; eyes are brown.

Arms not well developed, hair growth abundant.

Hands medium in size; fingers square and strong, with large joints.

Neck larger than normal for a female.

Mammary Gland. No mammary development; neither fat nor glandular tissue, strictly male type.

Areola dark brown and about ¼ inch in extent from nipple. It is encircled by small black hairs.

Abdomen. Longitudinal hair line well developed from one inch above umbilicus to pubic hair, which is very thick. There is no transverse abdominal hair line.

Spine. No deformity.

Lower Extremities. Hair growth excessive.

Pelvis flaring. Measurements: Interspinal, 27½ cm.; inter-crestal, 28½ cm.; external conjugate, 18 cm.

Heart, normal.

Lungs, normal.

On examining the genitals the enlarged clitoris with prominent glans, as shown in Fig. 1, obtruded itself and became erectile on the slightest touch. It was surrounded with a corona of hair and surmounted on the mons veneris with a luxuriant tuft. An excessive growth of hair covered all the surrounding parts and extended down on to the thighs. The clitoris measured three inches in length and three and a half inches in circumference. The foreskin could be drawn forward on to the glans, but retracted strongly in erection. The clitoris was restricted in its action as in chordee by a broad frenum, which reached from near the glans down to the under surface of the symphysis and disappeared within a little opening one-quarter of an inch in diameter, the urogenital cleft. A narrow strip of mucous membrane ran along the free border of the frenum as in cases of hypospadias. The clitoris was impervious and the meatus urinarius could not be discovered. Below the introitus was a broad perineum reaching to the anus. The vaginal opening took a Peaslee sound readily to the depth of four and a half inches and the caliber of the canal seemed to enlarge at the distal end. Under bimanual manipulation with

finger in the rectum no internal generative organs could be outlined except a cord-like extension from the upper end of the vagina.

The patient insisted that "the growth" was a great annoyance, that it made her different from other girls, and she wanted it taken off. When asked if she preferred to be made like a man or woman,
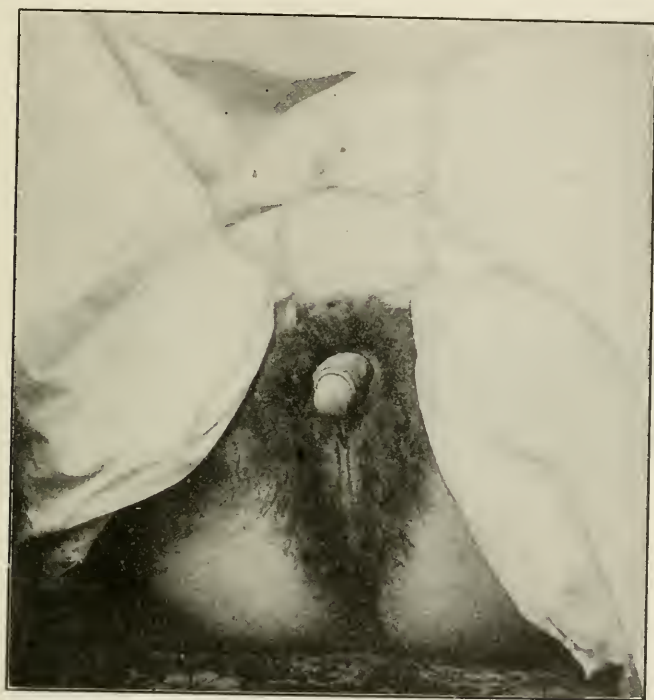
FIG. 1.—Appearance before operating. The round black spot below the clitoris shows opening to vagina. From its upper border a strip of mucous membrane extended to the glans along the free border of the frenum. Mucous membrane covered the median line of perineum for two inches toward the anus; shows light in the picture.

said decidedly, "a woman." Accordingly she was sent to the Polyclinic Hospital, and the operation was done March 11, 1903, in the presence of the class and some invited guests.

Operation.—With the patient under ether and the parts shaved and sterilized, by a little steady pressure I gradually insinuated my little finger into the urogenital cleft to its full length and then the index finger, being careful to dilate rather than tear. At the

depth of two and a half inches a strong constricting band of dense, resisting tissue was encountered, through which my finger was forced with difficulty. With the tissue put upon the stretch by bearing down with this finger strongly on the perineum two lateral incisions (one on either side) were made with scissors from the outer .edge of the canal to and including the constricting band. The depth of these incisions went only through the vaginal sheath. By firm pressure first with one finger in the urogenital cleft and then with two these incisions were torn deep into the tissues, resisting strands being snipped as they presented. In this way the caliber of the cleft was enlarged to a diameter of two and a half inches. At this juncture the meatus urinarius was searched for and discovered just under the internal border of the symphysis pubis, and a catheter passed, demonstrated the position of the bladder and the presence of urine. The skin adjacent to the vulva
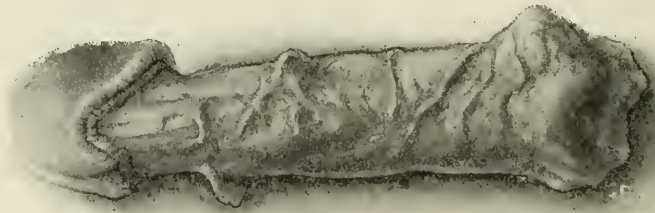
Fig. 2.—The clitoris after removal, the skin having been dissected off; exact size.

was so harsh and bristled so with hair that it was not available for filling in the lateral gaps in the mucous membrane of the vagina. The only apparent resource was to allow them to fill up by granulation, when suddenly the thought occurred to me, Why not use the skin covering the clitoris? This was soft and delicate and free from hair. It was therefore decided upon. A longitudinal incision was made along the dorsum of the clitoris and another along the ventral surface, and a circular incision just back of the corona of the glans. These flaps were carefully dissected off down to the base of the clitoris and left attached. The base of the clitoris was transfixed inside the flap with chromic gut and cut away. (Fig. 2.) The flaps of skin with their bases still attached were drawn down into the urogenital cleft and stitched in position on either side by catgut sutures, care being taken to make them reach in as far as possible by dragging down the skin upon the mons veneris and abdomen and holding it in place by firm straps

of adhesive plaster passed around under each thigh. The clitoris
measuring three and a half inches in circumference, afforded two
flaps, each one and a half inches wide, growing broader at the
base. These together with the anterior and posterior strips of
membrane of the cleft made a vaginal canal of goodly proportions.
The strip of mucous membrane on the under surface of the frenum
was saved, drawn up and stitched to the stump of the clitoris.
The purpose of this was to give support to the urethra and main-
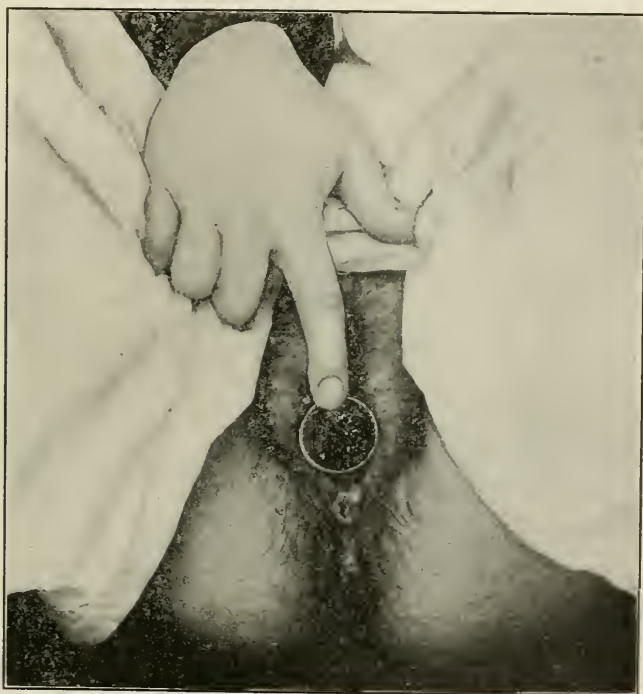
Fig. 3.—Glass tube in place during convalescence; the
patient's hand holds the tube.

tain its normal position. It also made a vestibule beneath the
stump of the clitoris. The stump was covered with the skin from
the mons as it was drawn down by the adhesive plaster.

There was considerable hemorrhage from the lateral incisions,
but no large vessels were incised, and what hemorrhage occurred
was controlled by applications of adrenalin chlorid. The vaginal
canal was packed moderately full of iodoform gauze, sufficient
pressure being made to smooth out the skin flaps and bring their

entire surface in contact with the underlying tissue. A self-retaining catheter was inserted into the bladder.

The dressings were removed on the fourth day and a glass tube substituted in the vagina to maintain pressure upon the flaps and secure its calibre, as shown in Fig. 3. The entire wound healed by first intention and the patient left the hospital at the end of four weeks. Fig. 2 shows the exact size of the clitoris after being stripped of skin and removed.

FIG. 4.—Photograph three weeks after operation.

Fig. 4 shows the condition at the end of four weeks. The vagina closed snugly, but readily admitted two fingers and permitted of further dilatation by slight pressure. Later digital and specular examinations revealed a small cervix at the head of the vagina, which took a small sound to the depth of one and three-quarter inches. A small gland could also be made out on the left side, but it had more the feel and shape of an enlarged lymphatic, although it may be a rudimentary ovary.

NOTE.—October 1, 1903. Patient reported at my office to-day. Has been in town all summer taking treatment three times a week

for removal of hair from her lip and chin—electric depilation—which had been eminently successful. External genitalia were covered with new growth of hair, and at general glance presented perfectly normal appearance. The vagina took the usual bivalve speculum easily and without pain. The vaginal walls were smooth and satisfactory in every way; the moisture of the vagina kept the skin-flaps soft and, to the touch, indistinguishable from the mucous membrane. Patient was in buoyant frame of mind over the success of the operation, and left for her home the next day.

29 West 46th Street.

OBSTETRIC NOMENCLATURE: SUGGESTIONS FOR ITS IMPROVEMENT.

BY

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It is universally admitted that as exact knowledge as possible of the size, shape and condition of the obstetric canal and of the size position, attitude, presentation and location of the child is of great importance in the management of a case of labor, and a necessity when operative interference is necessary. It will be quite as generally admitted that nine-tenths of the physicians who practice obstetrics are not in the habit of procuring such exact knowledge of the obstetric passages and passenger. How often, even in cases of dystocia, can the physician describe to himself and to others the position and location of the child and the cause of the interference to labor. This lack of knowledge is due in part at least to lack of experience in routine examination. Another and important reason is that a satisfactory system of nomenclature is wanting.

Passing by for the present the designations of position, which are perhaps sufficiently accurate but not, I think, most suitable and practical, let us consider for a moment the uncertainty that exists in designating the location or station of the child, or, more specifically, of the fetal head, when it is the presenting part. The terms generally heard are: "The head is engaging, partly engaged, firmly engaged, or simply engaged." Also, "The head is in the

strait, or just above the strait," etc. These terms are loosely used and convey no exact ideas of the conditions. They mean one thing to one person and something quite different to another. They are not defined accurately and receive no recognition in the official nomenclature—that is, the system of obstetrical nomenclature adopted by the International Medical Congress at Washington. So far as I am aware, only one writer, A. Mueller, has called attention to the importance of designating the location of the child.

And yet the question of the station or location of the child is of very great importance, quite as essential as that of attitude. I do not need to dwell upon this point. The difference between the seriousness of the low or middle forceps operations and the high forceps is admitted by all. In face presentation, especially, the difference between the operations is very great. But authors are not agreed as to what is meant by the term, "Head in the pelvis." It seems to me that it must mean that the greatest circumference has passed through the inlet, yet this vital point is not established in our nomenclature.

These considerations seem to establish the necessity for a method of defining station from a practical point of view. From a scientific standpoint there can be no doubt that the greatest possible accuracy in the use of names is desirable.

Of course, the question of obstetrical nomenclature is not a new one. The differences in the uses of obstetrical terms in different countries has long been a source of regrettable confusion. One of the most commonly noted differences is in the designation of the pelvic diameters. In the Latin countries the oblique diameters are named from their anterior, while the Germans and English name them from their posterior extremities. Thus the diameter passing from the left pectineal eminence to the right sacro iliac symphysis is called by the French the left oblique and by the Germans the right oblique diameter. The desirability of securing international uniformity was strongly stated by Prof. A. R. Simpson, of Edinburgh, at a meeting of the International Medical Congress in London, in 1881, in a paper entitled, "A Proposal for a Common Nomenclature in Obstetrics." At his suggestion a committee was appointed to consider the question, consisting of Budin, Paris ; Halbertsma, Holland ; Hennig, Germany ; Hubert, Belgium ; King, America ; Mangiagalli, Italy ; Simpson, Great Britain ; Slavjansky, Russia, and Stadtfeldt, Denmark. No report was made by this committee to the next Congress, in 1884,

but in 1887 to the Congress in Washington a report was presented signed by Simpson and King, of the Committee, and by De Laskie Miller, Chairman of the Section of Obstetrics, and by Lusk. This report was adopted, and therefore its conclusions now stand with the authority of the highest official sanction.

In other countries, however, the report seems not to have been very generally circulated or regarded. In 1889 Prof. La Torre, of Rome, presented to the International Congress of Obstetrics and Gynecology at Amsterdam a communication on the naming of the oblique diameters of the pelvis. As a result of this communication a committee was appointed to consider the unification of the obstetric nomenclature. This committee consisted of Treub, of Amsterdam, President of the Congress; Bar, of Paris; Pinard, of Paris; La Torre, of Rome; E. P. Davis, of America; H. Freund, of Strasburg; Queirel, of Marseilles; Rapin, of Lausanne; Von Rein, of St. Petersburg, and Simpson, of Edinburgh. This committee sent the conclusions adopted in Washington to many of the obstetricians in different countries for suggestions for changes deemed desirable by them. A report of some of these suggestions, together with modifications proposed by himself, have recently been published by M. Bar, one of the members of the committee. As the subject is still open, I would like to present for your consideration, and eventually for the consideration of this committee, a few suggestions.

In naming the diameters of the pelvic inlet, it seems to me that the confusion that arises from the use of the word "Conjugata" justifies the substitution of the anatomical nomenclature proposed by Budin and Audebert, namely, in place of the term "Conjugata vera," they proposed "Promonto-pubio-superior: P. P. S.;" and in place of the name "Conjugata diagonalis," they proposed "Promonto-pubio-inferior, abbreviated P. P. I." Then to name the practically most important diameter of the pelvic inlet we can add "Diameter-promonto-pubio-minimum, P. P. M.," to designate the shortest distance between the promontory and the symphysis. To reconcile the quarrel between the French and the Germans over the naming of the oblique diameter, we could also use the anatomical terms, but as they would be too cumbersome for common use, I believe it is preferable to adopt the proposal of M. Bar and return to the plan of numbering the diameters, calling the German right or French left oblique, the 1st oblique, and so on.

Let us now proceed to a consideration of the terms that apply to the passenger. When we examine a patient during labor, in ad-

dition to determining the condition of the obstetric canal—that is, the passage—we wish also to determine the facts that have a bearing upon the mechanism of labor and the prognosis of its course. So far as the passenger is concerned, the mechanism of labor depends upon the attitude and position of the fetus, while the index of the progress of labor is denoted by the progress of the fetus through the obstetric passages, or, as I prefer to say, by the location or station of the passenger. The attitude is determined by studying the trunk by external abdominal examination and by determining the presentation by internal examination. The attitude, whether flexed, deflexed or inclined, is at once inferred as soon as the presentation is given. For example, a sincipital presentation always means a semi-extended or partially flexed attitude, just as the presentation of a parietal bone means an inclined attitude. Consequently we may substitute the names of the presentation which are exact for those of the attitudes which are differentiated with much less minuteness.

Position which means the relation of one fixed point of the child to the body, or, more exactly, to the obstetrical canal of the mother, must include the relation of the axes of the child to those of the mother. When the head or the feet point towards the outlet of the obstetric passage the child lies in a longitudinal position, and when the back is directed downward or toward the obstetric outlet the child lies in a transverse position. Some have employed the term situs to denote the relation of the fetal and maternal axes. It is desirable to reserve the term position to designate the varying relations of the parts of the child to the side walls of the obstetrical canal. It is not, however, necessary to introduce a new term, situs, for the purpose of relieving the term position from some of its functions. The relations of the fetal and maternal axes are inferred or implied when the presentation is given. So for practical purposes we may agree with the Washington classification of presentations which divides them into two groups, according as the long axis of the fetus is longitudinal or transverse.

For determining positions more specifically I would suggest that before the head begins to enter into the pelvis, or, if we make an external examination and are not certain of the position of the head, it is desirable to make use of the back as the fixed or designating part of the child. We should thus be satisfied with designating the position as positio-dorsalis-læva-anterior or posterior, or Pos. D. D. A. or Pos. D. D. P. I do not mean to

imply that the position of the occiput may not be determined by external examination. Often the greater or less prominence of the frontal region determined by external examination enables us to diagnose the position of the head while it is entering the pelvis quite as certainly as by means of an internal examination. In such a case we can, of course, give the more exact designation by using the occiput as the designating point. When it is uncertain however, how the head diameters correspond with those of the inlet, and especially when descent has not begun, we should be satisfied to record our findings by telling the position of the back, and not infer, as is so often done, from them that the entrance of the head will accord with our suppositions.

During the passage of the head through the pelvis I believe it is desirable to retain the occiput for the designator, whatever may be the attitude or presentation. It was my experience, and has been my observation, that the use sometimes of the sinciput and sometimes of the chin to designate position is confusion. If the presentation is accurately given the attitude of the child is at once inferred as previously stated. It is quite unnecessary to change the method of naming the position because of various attitudes or presentations. In accordance with this plan, I would say, for instance—*positio occipitalis dextra posterior, presentatio occipitalis, verticalis, sincipitalis, facialis, ossis parietalis,* etc., as the case might be. It might be objected that the occiput is not felt in sincipital presentation, for example, and that it would be better therefore to designate a part that can be palpated. To this I would reply that we often fail to touch the part that we use in the name. In a vertical presentation we do not need to touch the occiput for the determination of the direction of the sagital suture and of the large fontanelle is sufficient. So in brow presentation it is quite unnecessary to touch the chin to enable us to say mento-posterior or anterior. The great advantage in using one designator in all presentations is that in this way we can better orient ourselves regarding the relation of the head and trunk to the uterus, and that it helps us to keep constantly in mind that all degrees of deflexed attitudes result from changes in the relation of the parts of the fetus to each other, and not from changes in the position of the fetus.

In this connection I would suggest that the habit somewhat common in this country of disregarding the proper order of terms modifying position be discontinued. Of course the modifiers always follow the modified term, and we should have *positio oc-*

cipitalis læva anterior or *positio occipitalis læva posterior.* To
write *positio læva occipitalis anterior* throws emphasis on *læva,*
which is not desired, and is as confusing in Latin as is the un-
meaning term in English, left occiput anterior.

Now I come to consider the addition to the terminology that I
have already proposed—the addition of a name to designate the
state of progress of the passenger into and through the passage.
The terms *situo, locatio* and *statio* suggest themselves. *Situo* or
situs has been employed already in another sense, and hence its
use would be confusing. *Locus* or *locatio* would be agreeable to
us on account of its English equivalent location. It has, how-
ever, no French or German equivalent, and is perhaps less suitable
to denote a temporary halt than *statio.* Hence I have concluded
to adopt this term, which Mueller has also employed.

Perhaps enough has been said concerning the need of a way to
denote the progress of the passenger through the pelvis. Here, as
always, an exact nomenclature implies and necessitates exact ob-
servation. Accurate observation and designation of the station of
the passenger aids in determining the probable duration of labor,
in recognizing obstacles and deciding upon operative interference.
The study of the obstetric passage is most satisfactory when we
consider it as consisting of two parts separated by the straits of
the ischial spines. The superior portion of the passage then cor-
responds with the pelvic cavity. Its walls are the soft parts lining
the bony pelvis. The internal lining is the distended cervical
canal and the upper part of the vagina. The lower portion of
the passage is the distended vagina surrounded by its muscular and
connective tissue attachments that form the pelvic floor and the
perineum. Its walls are soft and yielding. Its distensibility
varies according to the nature of the tissues, but it can be very
easily enlarged if necessary by the knife, thus forming a marked
contrast to the bone-encased upper segment. The surface or
strait usually designated as the outlet of the pelvis may commonly
be omitted. It lies near the inferior strait and its boundaries
are larger. Only when the coccyx is anchylosed at an increased
angle is the anterio-posterior diameter of this surface shortened,
and then the passage of the head through the pelvic straits may
be interfered with by the obstacle thus formed. Any contraction
in the pelvic outlet may, however, for practical purposes be con-
sidered as a part of the resistance of the pelvic straits.

In defining the station of the fetal head, or, indeed, of any part
of the fetus, we have four localities in which the part in question

may stand, namely: First, the pelvic inlet; second, the pelvic cavity or excavation; third, the straits, and, fourth, the vulvo-vaginal outlet, embracing all that part of the obstetrical canal below the pelvic straits. It now remains to consider how we may describe accurately how the part in question is related to each of these cavities and surfaces.

Limiting our consideration for convenience to the head, I would say that it lies or stands in either of the straits until the plane of its greatest circumference has completed the passage. In case of an occipital or vertical presentation the head is in the pelvic inlet until the suboccipito-frontal circumference has passed through this strait. Likewise in a frontal presentation the maxillo-naso occipital circumference and in a facial presentation, the submento-occipital circumference must pass through the strait before the head can be said to have left the inlet. When these circumferences or their planes have passed the inlet the head is in the pelvic cavity; it will remain there until it rotates on its transverse axis, completing flexion, and upon its vertical axis, bringing its long diameter to correspond to the long diameter of the ischial strait. Then descent begins and the head enters the second strait. When the large circumference has made this passage the head is in the vulvo-vaginal outlet. Generally the elasticity of this portion of the canal forces the head back into the strait upon the subsidence of a contraction. Only after the passage to and fro has been made a number of times does the head remain permanently in the outlet, from which it is soon expelled.

In recording these various locations of the head we may, if we please, use the Latin terms to denote the successive stages of the progress of the head, as, *statio supra aditu, in aditu, in excavatione, in angustiis* and *in exitu.*

The complete record of our findings will then include presentation, position and station and properly in the order given, for this is the order of the determination of the facts. Suppose early in labor our findings are denoted as *presentatio verticalis, positio occipitalis dextra posterior, statio in aditu,* which would be contracted into Pres. vert. Pos. O. D. P. Stat. in ad., or, more simply, Vert. O. D. P. in ad. Later we find Pres. oc. Pos. O. D. P. in excav. Still later we discover Pres. oc. Pos. O. A. Stat. in ang. Or, in another case, we might find Pres. sincip. Pos. O. D. P. Stat. in ad., and later O. P. in exc. With equal clearness and exactness any presentation can be recorded; for example, a face presentation might be Pres. fac. Pos. O. L. P. Stat. in ad., and a

cross presentation might be Pres. dorsalis positio scapularis dextra, Stat. supra ad.   With a proper designation of the condition of the cervix and of the membranes these concise phrases would be a complete and exact report of the examination findings.

The diagnosis of station is made by combined external and internal examination.   At the inlet more accurate results can be obtained by the former than from the latter.   Before the passage of the maximum diameter the head can be felt from above.   Afterwards it is, as a rule, out of reach.   The findings can be confirmed by internal examination.   In a vertical or sincipital presentation the presenting part has reached the strait before the head has passed the inlet.   In a face presentation the most advanced part has passed some distance beyond the strait before the head can be said to be in the pelvic cavity.   The rule to make the passage of the parietal protuberances a test of the station of the child has never seemed a good one to me on account of the uncertainty of palpating them.

The rotation and flexion of the head precedes its entrance into the ischial strait and the determination of these parts helps in fixing the station of the head above or in the strait.   By external palpation behind the anus or at the sides of the end of the sacrum we may feel the head during a pain as soon as it has well started in its passage through the straits.

For several years I have been in the habit of describing the findings in manikin class work practically in the way here given and I have found the nomenclature practical and helpful.

Of especial value is the separation of the concepts of presentation and position, the retention of the occiput as the point to designate position in all attitudes and the introduction of the term station to mark the progress of the child.

I shall be surprised if other teachers have not felt the same needs for an improvement in nomenclature along these lines.

CATARRHAL ENTERITIS IN WOMEN SIMULATING PELVIC DISEASE, WITH REPORT OF CASES.

BY

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THE object of this paper is to throw some light upon those obscure cases which so frequently present themselves to the gynecologist as a last resort, which are such a tax upon his patience and skill, and the treatment of which frequently results in ignominious failure. Special reference is here made to those patients which are so often classed as neurasthenics and which are the bane of the specialists. The physician thus appealed to often endeavors to save his reputation, as well as cover up his ignorance by transferring them to the neurologist, or by suggesting some vague and unscientific procedure, as for example a laparotomy for the psychological effect it may have on them, or by getting rid of them entirely by advising a change of climate.

The first objective symptom which attracts our attention is a frailty which is difficult to describe and not altogether unbecoming, but which stands quite alone and distinct among anemias. The facial expression is not suggestive of a female disorder; she has not a haggard, careworn look. The features are sharply outlined, while the muscles about the angles of the nose are drawn and pinched. The anemia is not indicative of insufficient iron, or of an excess of white blood corpuscles but seems rather to be due to an insufficient food supply. The expression is melancholic. This tendency is particularly noticeable if there is any attempt on the part of the physician to sympathize with her; her eyes fill and her voice trembles. In many cases there is the characteristic apology: "I am so ashamed of myself, doctor, I don't know why it is, but lately the least little thing makes me cry."

Inquiry usually elicits those symptoms which attract the attention of the gynecologist: bearing-down sensations, backache, nausea, sharp colicky pains across the abdomen and low down in the pelvis in the region of the uterus and ovaries. She is usually unable to date the beginning of her ill health to any particular

event, but on the contrary asserts that the onset was insidious to a degree. She complains of exhaustion, notwithstanding she usually sleeps well for from eight to twelve hours during the twenty-four. If she is not a working woman she finds it quite impossible to do without her siesta. Her nap refreshes her for a little while but the good effects of the rest soon wear away and she succumbs to a pronounced feeling of exhaustion. She is excessively nervous. Perhaps a formerly vivacious and cheerful disposition has given way to one of apprehensiveness and gloominess. There is a history of steady loss of flesh notwithstanding her voracious appetite; she appropriately expresses herself when she says that she is hungry all the time and enjoys her food, but that it seems to do her no good. Unless questioned closely she frequently affirms that she has no trouble with her digestive tract and that her bowels are regular. Too frequently the physician is not rewarded with reliable information until he questions her closely on this latter subject when she may admit that once in a while she is constipated for a longer or shorter period, and then has diarrhea for a few days. She thus conceives that the diarrhea compensates for the constipation, and the average would be termed "regular." It is surprising how large a percentage of women in all ranks of life insist that their bowels are regular when they have a marked history of constipation alternating with diarrhea.

The patient takes it for granted that she has some female disease because of the indefinite, but more or less constant pain and soreness in the abdomen, and especially the dull grumbling sensation in the lower part of the pelvis, which simulate a dragging and bearing down, because of the backache, the sideache, and the bloating. Even though a man pays special attention to his clinical histories, many of the above symptoms are so similar to those arising from disorders of the female organs, that unless he bears in mind the possibility of an enteric complication, he will surely overlook the finger-posts pointing to this clearly existing pathological condition. This is especially so when it is complicated with a lacerated perineum or a well defined displacement with leucorrheal discharge and menstrual disorder, especially amenorrhea. Added to this is the patient's conviction that she is suffering from a disease peculiar to her sex, not to mention the handicap with which every man has to contend who specializes in his practice, and whose tendency, in spite of his conscientious endeavors to the contrary, is to trace all symptoms to a source within the

domain of the anatomical region with which he is especially familiar.

If the gynecologist, after making a thorough examination, is unable to find an organic lesion, he may diagnosticate a probable rheumatic diathesis. If treatment for that condition fail, as a placebo, and often at the earnest solicitation of the patient, local treatments are tried. Failing there, he runs through the entire gamut of electricity, nerve sedatives, tonics, massage, change of climate, mental suggestion, and so on. Firm in the belief that there is no tangible disorder, the gynecologist may try moral persuasion, he may treat his patient as he would an insane subject, agree with her as to the seriousness of her condition, and after taking the husband or relatives into his confidence, suggest a major or a minor operation for the psychological effect it may have upon her. Rarely, he tries brutal frankness, but no matter which tactics he may employ, the result is the same for him and for her, failure.

Following is a brief report of several cases bearing on this subject:

CASE I.—The excuse for mentioning Case I in detail is that the writer has kept in touch with Mrs. A., since her recovery— 6 years and over—and has, in consequence, been able to verify several very interesting phases of the disease. In the fall of 1892, Mrs. A., married two years, no children, twenty-four years of age, suffered an attack of bloody dysentery. Several weeks after she had been pronounced cured of that specific complaint, she was still confined to her room from weakness and was progressively losing flesh and strength. Her stool was examined and found to contain large quantities of stringy mucus. The strips were of many lengths, some as long as two feet, and varying from an eighth to a fourth of an inch in thickness. Occasionally, there were entire membranous casts of the intestines. By actual measurement she discharged from one to two pints of mucus during the twenty-four hours, and was obliged to go to stool as often as ten and twelve times during that period. Each bowel movement was preceded by agonizing gripes and colicky pains. Upon closer examination the stool was found to contain large quantities of undigested bread, vegetables, etc., which had in many instances passed through the intestinal tract so rapidly after ingestion that the character of the food had been unaltered. On the theory that a milder climate than Chicago would have a tendency to dilate the capillaries on the surface of the body and

thus mitigate to some extent the internal congestion, she was sent to the southern part of Texas. For the first few months she made very satisfactory improvement, but with the approach of the Summer season the extreme heat produced so decided a relaxation of the blood-vessels generally, that the climate of Colorado was advised. The altitude of Colorado Springs had an undesirable effect upon her nervous system and reacted badly upon the enteric complication. Denver, however, proved all that could be desired, and after five years of almost constant treatment, daily flushing of the bowels, internal medication, and rigid dietetic measures, the patient was finally discharged as cured.

It was she who first attracted the writer's attention to the marked similarity of those symptoms which appeal to the gynecologist. Especially does this refer to those bearing-down sensations which simulate the discomfort felt by the normal woman just previous to, or with the onset of the menstrual flow, the lancinating pains and gnawing aches, the nausea, the melancholy, and the extraordinary nervousness which are the frequent companions of the derangement of those organs situated in the true pelvis.

On two different occasions since Mrs. A.'s so-called recovery she believed that she was threatened with an attack of appendicitis. These symptoms were such that it was with difficulty the diagnosis could be cleared up. The dragging sensation was so marked that the patient could not stand with comfort and obtained relief only by lying down with her knees flexed. The entire abdomen was tender on pressure, and on walking across the room she would place her hands across the lower part of the abdomen and press upward for support. There was a slight elevation of temperature and rapid pulse accompanying these symptoms, due partially, no doubt, to her anxiety and pain, as well as to the mesenteric and intestinal congestion. On several other occasions she labored under the impression that she had some derangement of the pelvic organs and after leaving the house returned to rearrange her toilet for a menstrual period. She soon discovered this was not necessary, but the discomfort was so similar to approaching menses that she was unable to detect the difference by sensation. All these symptoms proved beyond doubt to be a temporary relapse of catarrhal enteritis, and active measures along that line gave immediate and decided results. The exceptional health of the patient at this present writing proves the correctness of the previous diagnoses.

Case II.—Mrs. B., 24 years of age, married four years, no children, sought advice nine years ago. Soon after marriage she suffered from a severe gonorrheal infection which necessitated a complete ovariotomy. About six months after her operation she complained of bearing-down pains in the lower part of the pelvis, nausea, sensations which were suggestive of molimen menstruale, extreme nervousness and exhaustion. She was emphatic in the statement that there was something the matter with her uterus, and at her earnest solicitation a pelvic examination was made, with negative findings. Upon examination of her feces the diagnosis of catarrhal enteritis was made and she was treated accordingly with gratifying results.

Case III.—Mrs. C., 26 years of age, married two years, one child. Patient presented herself about eight years ago for general debility, bloating, pain in the abdomen, nausea, neuralgic and bearing-down pains in the lower part of the pelvis. She was conscious of a laceration during the birth of her child and attributed her ill health to that cause, and requested local pelvic treatment. Pelvic examination showed a perineal laceration of the first degree, but the structure firm and not relaxed. Otherwise the findings were negative. Her stool was examined and a catarrhal condition of the intestines was diagnosed with usual accompanying intestinal indigestion. The above symptoms yielded promptly to treatment.

Case IV.—Mrs. D.; married, no children. Seven years ago patient diagnosed her complaint as "womb trouble," and desired pelvic examination for that condition. Both ovaries could be palpated, enlarged and tender, uterus normal in position and size. A curettage was suggested for the profuse leucorrheal discharge, but this was refused. Local pelvic treatments were administered for several months and the patient was discharged as much improved. A year ago Mrs. D. became much debilitated. She suffered from bearing-down sensations, pains of a boring nature in the lower part of pelvis, backache, loss of strength and endurance, and a steady loss of weight. She also suffered frequently from violent attacks of hysteria. At last the husband vaguely requested an operation, while the patient herself was willing to submit to any measure for relief. A pelvic examination without the anesthetic brought out very little tenderness in the posterior cul-de-sac. Under an anesthetic nothing abnormal was detected with the organs in the true pelvis. A curettage was done for the endometritis and sterility. Upon examination of

the stool evidences of a catarrhal enteritis were abundant, and the necessity of treatment for that condition was impressed upon her. Very recently a letter was received from the husband expressing his gratitude for the results obtained.

Case V.—Mrs. E. desired medical attention five years ago. She was 27 years of age, married four years, no children. All previous diagnoses had been that of a marked case of neurasthenia. Negative findings on pelvic examination with the exception of a very slight tenderness in the posterior cul-de-sac. Stools were clay-colored and contained much mucus and undigested food. Within six weeks after her first consultation and treatment for catarrhal enteritis the satisfactory results were startling, and at the present time she is in good health.

Case VI.—Mrs. F. came for medical aid four years ago. She was thirty-two years of age, had been married seven years, and had had one child. Since her marriage the patient had been under the care of a gynecologist from time to time. One man had advised her to have an exploratory operation by the abdominal route. Several had suggested curettage, another electricity, another long-continued local pelvic treatments, another massage, and still another had discharged her as a hopeless neurasthenic. The findings on pelvic examination were practically negative. Patient was a complete wreck physically, she was melancholy, poorly nourished, and in such continual pain that she was unable to oversee her domestic affairs. Her stool showed large quantities of mucus mixed with undigested food. Analysis of stomach-contents revealed a lack of hydrochloric acid. Patient was under observation and care for nearly a year, and at the present date she enjoys excellent health. She informs me, however, that if she indulges immoderately in dietary indiscretions she suffers a relapse.

Case VII.—Four years ago Mrs. G. sought treatment for what had been previously diagnosed congested and prolapsed ovaries. Pelvic examination revealed a fixed retroversion of the second degree, and a prolapsed left ovary. The tenderness disappeared with local treatment and hot douches, but otherwise the patient grew progressively worse until her family feared a mental derangement as well as a physical collapse. An alienist was called in consultation, but was unable to throw any light upon the case. He confidentially remarked the patient was a neurasthenic of such pronounced type that the prognosis as to a cure was practically hopeless. Mrs. G. insisted that her bowels were regular and furnished

a specimen of her stool reluctantly.   Inspection not only enabled
the diagnosis of catarrhal enteritis to be made, but served the
purpose of demonstrating to her as well, the catarrhal condition
of her intestines, and the necessity of denying herself those foods
which passed through her intestinal tract undigested.   In the
course of six weeks after the beginning of treatment for the en-
teric condition, the patient recognized the fact that she was gain-
ing headway.   A year and a half from that time she was con-
fined of an eight-pound, healthy boy, and aside from slight re-
lapses of catarrhal enteritis and incidental ailments, the patient
has been in excellent health.

Case VIII.—Miss H., twenty years of age, single.   Four
years ago patient had an attack of appendicitis of the fulminating
variety, and underwent an appendectomy.   With the exception of
obstinate constipation, due probably to excessive adhesions oc-
curring at the time of the above-mentioned attack, she had enjoyed
perfect health until last fall.   At that time she complained of pain
in the abdomen and ovarian region, accompanied by pronounced
nausea, which had culminated several times in vomiting, and
once the patient had fainted.   Her symptoms were such that they
were suggestive of pregnancy, and this theory was strengthened
when a history of amenorrhea for the past three months was
brought out; accordingly, a pelvic examination was made with
that thought uppermost.   The findings were negative.   Miss H.
informed me that her bowels were regular, but an examination of
her stool showed quantities of mucus and undigested food.   Her
unpleasant symptoms were promptly relieved by treatment for
enteritis and at the present time she has no relapse of what she
terms "pain in the ovaries," if she discards certain objectionable
articles of diet, which depend upon the small intestine for di-
gestion.

Case IX.—Miss I., single, school girl of seventeen years. Three
years ago patient's mother desired medical advice about her
daughter, whom she believed to be suffering with either a chronic
appendicitis, or an inflamed ovary.   Miss I. complained of diffi-
culty in walking at times on account of bearing-down sensations,
backache, and an almost constant pain low down in the pelvis,
which she described as gnawing or grumbling in character.   There
was a general feeling of exhaustion, some nausea, and she was
excessively nervous and melancholy.   Pelvic examination per rec-
tum was negative.   Careful observation of the case for several
days was necessary before the existence of a catarrhal appendi-

citis was excluded. The stool revealed a catarrhal enteritis, and the patient was discharged over a year and a half ago, since which time she has not had a relapse.

CASE X.—Three years ago Mrs. J., twenty-four years of age, had been married a few weeks when her husband sought medical attention for her. Patient's history showed that for nearly five years she had been an invalid and was gradually growing worse. She complained of being exhausted most of the time, and was in the habit of sleeping fourteen hours and more out of the twenty-four. She suffered from nervousness, hysteria, and melancholy to such an extent that her husband and family were alarmed for her sanity. She complained of backache, bearing-down pains and nausea. By the advice of previous physicians she had traveled by turns to the coast, and to inland cities of high altitude, and consented unwillingly and half-heartedly to further medical attention. Pelvic examination showed her uterus in normal position. The left ovary was somewhat congested and prolapsed. A careful general examination revealed no specific disease. The blood count was practically normal, as was a twenty-four specimen of urine. The stool, however, was filled with small particles of undigested food and tiny flakes of mucus. Over two months of rigid dietetic measures and treatment were required before the patient noticed a change for the better, and from then on she made a slow but satisfactory recovery. Recently the husband writes that his wife is in fine health, that she has regained her former sunny disposition, and has exceptional powers of endurance. She has not had a relapse since she was discharged, one year ago.

CASE XI.—Miss K., twenty-two years of age, single, shop girl, sought medical advice three years ago for what she supposed to be an ovarian inflammation, and which had existed for some two years. Pelvic and general examination was negative. Inspection of stool showed undigested food and mucus. The patient was discharged after several office consultations. Six months later she reported her symptoms as entirely disappeared, so long as she was moderately careful of her diet.

CASE XII.—Miss L., shop girl, seventeen years of age, about three years ago requested medical advice for what she supposed to be a severe female disorder. Her abdomen was so bloated that she was obliged to lengthen her waist-band. She complained of bearing-down pains of such pronounced character, accompanied with neuralgia, that she was forced to give up her position. Patient was a nervous wreck. She had been under treatment for about

a year, taking medicine, as she informed me, for "inflammation
of the womb." Previous to this time her modesty forbade her sub-
mitting to a pelvic examination, but her suffering had become so
intense that her reluctance was overcome, and she presented her-
self anxious to have the ordeal over with. It was suggested that
this examination be postponed until after the stool had been in-
spected, as there was a marked history of diarrhea alternating with
constipation. The specimen showed a very severe form of ca-
tarrhal enteritis. The good result obtained from treatment was
pronounced and immediate. It is over two years since patient
was discharged, and at the present time her health is excellent,
with no suspicion of any female disorder.

CASE XIII.—Miss M., single, thirty-two years of age, school
teacher. Over a year ago Miss M. sought relief for dysmenorrhea
of an aggravated type. On pelvic examination a fixed retroflexion
of the third degree was palpated, and a vaginal fixation was done
for same. Within the next few months the patient had gained fif-
teen pounds, and wrote that she was living without dread of the
menstrual period for the first time since puberty. Six months
after the operation she returned in great distress with bearing-
down pains in the pelvis, and an almost constant sensation which
she could describe in no other way than to say she felt as if she
were about to menstruate; so pronounced was this symptom that
she did not dare leave her home without arranging her toilet for
such a contingency. She had begun to lose flesh and was unac-
countably nervous and melancholy. The stool revealed mucus
and undigested food. The unpleasant symptoms subsided im-
mediately upon treatment for catarrhal enteritis, and at present
writing she is in fine health.

CASE XIV.—Mrs. N., married eight years, no children. Patient
came for medical advice the first of this year with the most dis-
couraging history. Within the year she had undergone a surgical
operation, an abdominal exploration. The husband explained con-
fidentially that the operation had been done for the psychological
effect the attending man had hoped to derive from it. It was al-
most impossible to mention any treatment which she had not
tried, and her continued ill-health had rendered her and her im-
mediate family hopeless. The lancinating pains in the abdomen
and pelvic regions were of such a nature that she remained in bed
most of the time. She was firm in the belief that the man who
operated upon her did not remove all the "growth," whatever
that growth might be. Her stools were filled with mucus and

undigested foods. The relief obtained by active treatment was entirely satisfactory, and at this present writing the patient considers herself practically well.

Case XV.—Mrs. O., married one year, no children, sought relief about six months ago for what she believed to be an intractable female disorder, and at the present time is under medical treatment. Her symptoms were typically those of a gynecological subject, while those suggestive of catarrhal enteritis were so masked that they were overlooked entirely. In fact, she insisted that the only thing about her which was seemingly perfectly normal was her intestinal tract. Her bowels were regular—one normal movement daily. Pelvic examination revealed her uterus retroverted in the second degree, and somewhat fixed in that position. Otherwise the findings were negative. Several appointments were kept with her before a specimen of the feces was asked for. On examination the stool proved to be literally honeycombed with small flakelets of mucus, as well as undigested food. After following directions for several weeks she came to the office radiant with the information that she felt better than she had for several years. Her health, strength, and disposition began to improve almost immediately, and she is steadily gaining in weight.

In selecting these cases there has been a conscientious endeavor to mention only those who came for advice under the impression that they were gynecological subjects, not a few of whom had been unsuccessfully treated by the specialist. The invariably good results cannot be too enthusiastically spoken of. In no other class of patients does the physician receive more intelligent aid, nor more appreciation for the end obtained.

First of all, the patient can see for herself, if her stool contains mucus and undigested foods, wherein the trouble lies. If her food comes away from her undigested, she can readily be made to believe that she is obtaining no good results from the ingestion of it. When you can show her the small flakes of mucus, the frothy fermentation of the feces, you can usually be assured of her helpful aid, inasmuch as she will recognize the necessity of taking only those foods which the small intestines and stomach can digest, leaving little residue. When we request a patient to give up certain articles of diet, of which she is especially fond, it is a valuable adjunct to have her hearty co-operation. When she is shown that specific foods are not only doing her no good, but are actually passing along the intestines decomposing, producing gas, con-

gestion, and by their irritating presence causing a catarrhal discharge of mucus, she is ready to join her efforts with yours.

Secondly: There is a fine psychological effect produced upon those undesirable chronic subjects when their minds are diverted from those organs situated in the true pelvis, and their attention turned to other parts of their body.

Generally speaking, it is not necessary to make a microscopical examination of the feces. The patient is requested to bring her first soft stool in a pint fruit jar, tightly covered with a screw top. A superficial glance usually suffices for the gross examination, and no particular hardship is inflicted upon the patient in conveying it, nor to the busy practitioner in inspecting it.

Definition.—When speaking of catarrhal enteritis we have reference to a catarrhal condition in which more or less of the entire intestine participates. Accompanying this catarrh is a lack of digestion and of assimulation of those foods which the small intestine handles, and is probably due to a rapid peristalsis or impaired pancreatic secretion, or both.

Etiology.—Among the primary causes the writer is inclined to place food first. The disease frequently originates in the summer and among those who are immoderate in their desire for uncooked fruits and fresh vegetables.

There is a general impression that catarrh of the intestines is almost exclusively confined to those who possess an eminently nervous temperament, but observation extending over ten years has demonstrated to the writer that there are as many cases in proportion among clinic patients as of those in the higher walks of life. Catarrhal enteritis seems to visit, with indiscriminate impartiality, the happy-go-lucky negress, the slow-going plethoric German house-wife, the society woman who is living up to and beyond her energies, the ambitious business woman, and the easy-going domestic wife who has no particular care nor anxiety. It would, therefore, impress him that nervousness is an effect rather than a cause of catarrhal enteritis.

With the exception of Case I, which has been mentioned, the writer has rarely found catarrhal enteritis developing as a sequence of a serious disease.

Pathology.—The diagnosis of catarrhal enteritis is frequently obscure and frequently overlooked, and inasmuch as the disease is rarely fatal, there is little reliable information to be had in regard to its pathology. The symptoms would lead us to believe there is considerable congestion of the intestinal wall, but owing, no doubt,

to the post-mortem changes, it has not been verified. Indeed, the little that has been written on the subject is extremely unsatisfactory. Reasoning from analogy, we would be justified in presuming that catarrh of the intestines does not differ materially in its pathology from catarrh of mucous membranes in other parts of the body.

Symptoms.—The symptoms are varied and inconstant. Perhaps the history of constipation alternating with diarrhea is the most constant symptom.   There are bearing-down sensations in the lower part of the pelvic regions, simulating the menstrual prodrome, soreness in various parts of the abdomen, bloating after eating, colicky and lancinating pains, especially noticeable just before the patient has a movement of the bowels, and also accompanying the movement, nausea and sometimes vomiting. Very frequently the patient complains of irregularity of menstruation—especially amenorrhea and leucorrhea. There is usually a slow and progressive loss of flesh. The anemia has already been spoken of in the beginning of this article. The exhaustion is also a prominent feature, a desire to sleep, excessive nervousness, and a pronounced tendency toward melancholy.

The weight and dragging sensations in the pelvis, the backache, and the soreness across the abdomen, accompanied with more or less neuralgia, are probably produced by the congested intestines, the accumulation of gas in them, and also the dragging of the congested mesentery. The nausea is likely due to the intestinal indigestion, and the absorption of toxines. The irregularities of menstruation, especially amenorrhea, also the leucorrhea, can assuredly be laid at the door of impoverished nutrition. It is generally conceded that there is a well-recognized tendency for disorders of the intestinal tract to produce nervous irritability and melancholy.

Diagnosis.—The diagnosis is most satisfactorily and positively made by the examination of the stool. The dejections vary in color and consistency, the pale, clay-colored stool is especially pathognomonic. If the small intestine is mainly involved the mucus is found in small shreds. Frequently the feces are filled with bubbles and froth indicative of fermentation, and in the majority of cases there are small particles of undigested food scattered through the feces. If the mucus is found in long strings, or small islands, an inch, more or less in diameter, resembling egg albumen, the lower part of the large intestine is involved.

Differential Diagnosis.—Chronic intestinal enteritis must be differentiated from appendicitis of the chronic catarrhal variety, from floating kidney, tubercular enteritis, from the early months of pregnancy and from *those disorders in the pelvis which attract the gynecologist.* The necessary procedures indicated in order to clear up these various complications suggest themselves at once, and in all cases an ocular examination of the feces is imperative, and is usually sufficient to clear up the diagnosis of catarrhal enteritis.

Treatment.—Above all things patience is the prime requisite for the successful treatment of this decidedly chronic complaint. The patient is requested to weigh herself in the beginning of the treatment, so that accurate information may be obtained from time to time. Her diet, even in very marked cases, may be comparatively generous : Clear soups, eggs in all forms, one or two quarts of milk daily, matzoon, buttermilk, etc., rice in small quantities, small amounts of bread twice baked and water crackers, custards, ice cream, roasted and broiled meats. Vegetables are usually restricted entirely at first, as well as all uncooked fruits, pastry, cake, etc. After a few weeks of experimentation the patient herself will be able to modify, enlarge, or restrict her diet according to her requirements.

The bowels should be regulated with some form of cascara sagrada. If there is a tendency to obstinate constipation, or too free movements, high colonic flushing is indicated. The patient is directed to take a quart or more of warm water, mildly alkaline, or normal saline, for the purpose of emptying her lower bowel. This is followed by a quart of water containing 8 c.cm. of the normal fluid extract of hydrastis. When it is difficult for the patient to take a satisfactory high enema, the knee and chest position is a valuable and simple means of accomplishing the desired end.

The writer has obtained uniformly excellent results with a pill consisting of powdered ipecac ; 1-8 grain beechwood creosote ; 2 grains black pepper powder ; 2 grains naphthol ; 1 grain extract of hydrastis. These pills are so coated that they are not affected by the gastric juices.

Acetezone suggests itself as a valuable adjunct, but as yet evidence, sufficient to be valuable, has not been gathered.

In conclusion, the writer cannot dwell too strongly upon the value of inspecting the feces, and ranking it as equally important with the chemical and microscopical examination of the twenty-four-hour specimen of urine. If this is done he believes many an

obscure case which comes to the gynecologist for relief, and which is, in many instances, treated unscientifically, and with unconscious cruelty by the man who in his heart says "Neurasthenic," will yield gratifying results.

103 State Street.

OVARIAN GRAFTING.

BY
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The experimental work upon which I wish to make a report at this meeting was interfered with by an accident to one of my series of rabbits, and I will simply give a brief resume of our information to date on the subject of grafting ovary.

(1) When the ovaries are removed from an animal, and then replaced at some point near their original site, or even at distant points, the tendency is for the ovary to continue its functions of developing ova and of furnishing its internal secretion. Such transplantated ovaries may continue to do normal work for an indefinite period.

(2) When ovaries are removed from one animal, and transplanted into another animal of the same kind which has had the ovaries removed, the tendency is for the grafted ovary to undergo a degenerative process. The graft will continue to furnish ova and internal secretion for several months in some cases, but at the end of a year we often find the grafts fatty and apparently useless. We assume that the serum of one animal is destructive to the introduced tissues of another animal of the same sort. My present line of investigation is toward making one series of rabbits immune against the serum of another series, and then exchanging the ovaries of the two series. If this can be accomplished ovarian grafting will be placed upon a plane of usefulness much above its present one.

We have, however, arrived at several points of practical value, and that may be applied in our work to-day. If, for instance, in a case of pyosalpinx we are obliged to remove the ovaries and oviducts *en masse*, as often occurs, we can place part of a fairly good ovary in warm saline solution until the rest of the work is

completed, and then graft this piece of ovary partly beneath the peritoneum at some point near its original site, before closing the abdomen. The ovarian graft will be the means of preventing a precipitate menopause, the patient will continue to menstruate, and there is a possibility of pregnancy occurring if the stumps of the oviducts remain patent, as they commonly do after absorption of cat-gut ligatures. This refers chiefly to grafting in a piece of the patient's own ovary. If she receives a graft from another patient, operated upon at the same time for the purpose, the patient may continue to menstruate for some months, and to have the benefit of internal ovarian secretion. It may even be possible for her to become pregnant, before the graft has degenerated, but this has occurred as yet only in rabbits, and very shortly after the grafts were introduced. The degeneration of ovary grafted from one patient into another is as yet so certain to occur, that the procedure has little practical value. Incidentally it may be of interest to know that we have restored the function of menstruation in patients who have lost their ovaries, for various periods of time, up to two years after the loss of the ovaries. Menstruation, however, continued for a few months only, and then disappeared with the disappearance of the integrity of the tissues of the graft. In one patient who had congenital absence of the uterine adnexa and who had never menstruated, menstruation was established by ovarian grafting, and continued nearly four years. These facts are contributory to an interesting mass of data that we shall eventually group together for scientific classification, but to-day I wish simply to impress the idea that we are to graft back a part of a woman's ovary whenever this can be done safely, in cases in which the loss of all ovarian tissue would be a misfortune. The method that I employ consists in putting a piece of one ovary into a pan of saline solution at a temperature of about 100° Fahr., and detailing a nurse to keep the water at this temperature until the rest of the intra-abdominal work is completed. The segment of ovary is then inserted through a slit in the peritoneum, somewhere near its original site, and in such a way that raw surface of ovary is subperitoneal, where it can be nourished by the lymph circulation until new capillaries have formed for its support. New blood vessels are formed about the graft so rapidly that I have been surprised at their size and abundance at the end of two months in rabbits. A part of the normal periphery of the ovary is allowed to protrude into the peritoneal cavity, so that ova may escape and find their way into the oviducts in cases in which such a possi-

bility exists. One or two sutures of fine catgut serve to hold the graft in place. The facts which are at present grouped about the subject of ovarian grafting will have a tendency to make us more conservative in the way of sparing many uteri that would otherwise be removed by advocates of panhysterectomy.

"PARALYSIS OF THE ABDOMINAL SYMPATHETIC AND FECAL IMPACTION FOLLOWING LABOR;"

ALSO

"A CASE IN WHICH DEATH FROM HEMORRHAGE FOLLOWED PREMATURE LABOR."[1]

BY

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Philadelphia.

PARALYSIS of the abdominal sympathetic is not of rare occurrence after abdominal section, especially in cases where a large tumor is removed from the abdomen. It is a complication to be feared because the interruption of the circulation in the abdominal viscera invites the development of infection. Much of the after treatment for cases of abdominal section is devoted to the prevention of this accident.

After delivery in cases where the fetus is unusually large, in polyhydramnios and in exhausted women, the same condition is observed. It may be associated with postpartum hemorrhage and the depressing effects of both lead to a fatal issue. Its occurrence after the delivery of a normal fetus when hemorrhage is absent and where the mother was apparently not exhausted is sufficiently unusual to warrant this report:

The patient was æt. thirty-five, pregnant for the second time. In early life, she had exophthalmic goiter, spinal curvature and several mild infections common in childhood. Her first labor was terminated by the use of forceps, and after this she had an operation for retroversion, followed by great irritability of the bladder. She was highly neurotic, of gouty diathesis, habitually neglectful of herself and devoted with excessive zeal to the care of her child. She had during pregnancy several attacks of syncope and was put under the charge of a nurse for several days on one

[1] Read before the Obstetrical Society of Philadelphia, November 5, 1903.

occasion. She was practically uncontrollable in the expenditure of nervous energy and continually exhausted herself. Her excretions required frequent stimulation during pregnancy and an unsuccessful attempt was made to regulate her diet and secure thorough bowel movements.

When labor occurred, the first stage was characterized by irregular and nagging pains with much complaint of suffering. Under the influence of codeia, dilatation proceeded steadily and when the head of the child reached the pelvic floor, very strong and convulsive uterine contractions developed which threatened serious laceration. The patient was immediately anesthetized by ether and easily delivered with forceps. There was no hemorrhage and but a very slight laceration requiring one catgut stitch.

After labor the patient was intensely wakeful and unable to rest. The use of the catheter was forbidden and the patient emptied the bladder spontaneously. She complained much of general abdominal pain and upon examination, a doughy mass was found in the left upper portion of the abdomen. The administration of a purgative was followed by vomiting and by gradually increasing distention of the abdomen without purgation. Efforts to move the bowels by enemata were unsuccessful. The patient rejected food by the mouth and a condition of great prostration developed. The lochial discharge continued normal, the temperature varied from 99° to 102° F. and symptoms of septic infection were wanting. On examining the bowel with a rectal tube, impacted feces could be detected at the lower extremity of the mass outlined by palpation.

The patient was stimulated by hypodermatic injections, fed by rectal nutrient enemata, and copious injections of dissolved oxgall were given by a rectal tube passed as far into the descending colon as possible. On several nights the patient developed attacks of apparent cardiac syncope which required the use of digitalin and other stimulants. Abdominal distention continued to increase until the patient could be moved with difficulty and complained bitterly of pain upon motion and pressure. At the worst the patient's condition seemed critical. The lochial discharge continued normal and the temperature as stated.

Under the continued use of the treatment described, hardened fecal matter was gradually softened and expelled, the abdominal distention and tenderness slowly lessened, the patient was able to take predigested food and retain it, and finally made a tedious recovery. Mucus in shreds was discharged from the bowel dur-

ing the latter portion of her convalescence, and the patient's former
complaint of irritability of the bladder returned. She received
general and abdominal massage for some time and ultimately made
a complete recovery, gaining in weight. Examination after her
convalescence showed the pelvic organs normal, the abdominal
wall well contracted and sound, tenderness absent. The vesical
irritability of which the patient originally complained is un-
changed.

Immediately after labor, intestinal peristalsis seemed to cease
in this case and became very gradually re-established. The great
distention, the patient's very rapid and feeble pulse, the tumor in
the intestine, the temperature, the continuance of normal lochia
and the final recovery of the patient identify the condition as one
of vasomotor paralysis, accompanying toxemia of intestinal
origin. The patient's recovery may be ascribed to the fact that
bacteria from the intestine did not penetrate the wall of the bowel
and set up an acute infection in the peritoneum. Puerperal septic
infection could be excluded. Since her recovery the essential
features in the nervous condition of the patient have reappeared.
Her vesical irritability is as great as ever.

Reference to the literature of the subject finds the report of no
similar case and hence it has seemed worth while to publish this
history.

CASE II was that of a woman æt. twenty-three, who sought
admission to the Jefferson Maternity in her third pregnancy.
Her previous labors had been spontaneous but long and severe.
She was excessively anemic, the muscular tissues poorly developed
and wasted. She stated that hemorrhage had begun three months
before and that for six weeks bleeding had occurred daily. She
was about seven months advanced in pregnancy and had been told
at a hospital that she had abdominal gestation, for which ab-
dominal section had been proposed. On examination the fetus
was found within the uterus, the cervix was very soft but no other
abnormality was present. There was no evidence of placenta
previa. The patient was admitted to the Maternity and remained
in bed until the birth of her child ten weeks afterward. There
was no more hemorrhage and under tonic treatment she con-
siderably improved. When labor occurred, there was delay
through inertia, complete dilatation was secured artificially and a
living child delivered by forceps. There was a tear upon the left
side of the cervix which was closed by catgut and which united.

The mother made a slow uninterrupted recovery and left the Maternity with her child in fairly good condition.

About eighteen months afterward, this patient sent for Dr. Coles, who found her about five months advanced in pregnancy. She had been suffering from severe hemorrhage and the premature expulsion of the fetus seemed inevitable. She was brought to the Maternity, where she came into labor which was greatly delayed. Threatening exhaustion made it necessary to dilate the cervix manually and to deliver the fetus by extraction. The child was stillborn and a tear of slight extent in the cervix was again closed by two catgut stitches. The patient did well for a week, after delivery when hemorrhage recurred. The uterus was thoroughly explored with a blunt curette but no placental tissue found to account for the bleeding. Hemorrhage ceased with gauze packing. A week later, a second hemorrhage occurred which was controlled in the same way. An examination of the blood showed leucocytes 5,200; erythrocytes, 1,780,000; hemoglobin, 30 per cent. An examination of the blood six days later showed leucocytes, 5,600; erythrocytes, 1,920,000; hemoglobin, 28 per cent. Two weeks later another severe hemorrhage occurred which was controlled by gauze packing and the administration of stimulants. Examination showed the cervix greatly enlarged, very soft and bleeding easily. Two weeks later the patient died of exhaustion following a return of the hemorrhage. Ergot, iron, strychnia, stypticin, hydrastin, morphia and viburnum were all tried but without the slightest effect. No one bleeding point in the cervix could be observed nor could a laceration of sufficient size to account for the hemorrhage be found. The cervix was greatly enlarged, friable, soft and dark red in color. The blood did not come from the cervix alone but could be seen to pass through the internal os from the cavity of the uterus.

A partial autopsy only was obtained. The uterus was normally situated, its cut surface pale yellowish-white. The endometrium was smooth, thin and presented no apparent lesion. The muscle of the uterus was soft and flabby and upon section of the cervix there was found at the external os a reddish-yellow soft area, extending through the cervical canal and a small part of the internal os. Upon microscopical examination, the muscular tissue was infiltrated extensively with lymphoid cells. The epithelia of the cervix showed fragmentation of the cells with infiltration of submucous tissue. Micrococci were present in the cervix, some resembling pneumococci. The results of microscopic examination

were largely negative, an ulcerative process of the cervix being the only lesion manifestly present.

In the absence of a history of hemophilia and placenta previa, it is difficult to find an adequate explanation for the hemorrhage. Syncytioma malignum presents itself as a possible and even probable explanation and a more complete autopsy might have given evidence of its presence. There was no fibroid growth present in the uterus, nor was there any other lesion of the pelvic organs.

No measure except compression by gauze seemed to influence the bleeding. This treatment was always accompanied by hypodermatic stimulation and by rectal injections of saline fluid. No hemorrhage followed immediately after the removal of the gauze and the hemorrhage recurred at different times of the day or night without apparent existing cause. At no time did the patient's condition justify hysterectomy.

250 South 21st St.

EPIDEMIC CEREBRO-SPINAL MENINGITIS IN CHILDREN.[1]

BY

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(With two charts.)

Epidemic cerebro-spinal meningitis is an acute infectious disease characterized by a local lesion in the brain and spinal cord.

The synonyms cerebro-spinal fever, typhus petechialis, febris nigra, malignant meningitis and spotted fever are indicative of the gravity of the disease.

The first epidemic to be accurately described was in 1805, when Vieussens reported cases of the so-called "malignant non-contagious fever" occurring in Geneva. To Dr. J. Lewis Smith, however, must be given the credit for the best contribution to the literature on this subject. He states that the disease first appeared in America at Medfield, Mass., in 1806. During the succeeding ten years, it was seen in various parts of Canada and the United States. Some time between 1816 and 1828 an epidemic

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[1] Read before the Washington Obstetrical and Gynecological Society, April 17, 1903.

visited Middletown, Conn.   In 1842 epidemics occurred in New
York and also in several of the Southern States.   Through all
these years our city seems to have escaped the ravages of this
disease.   However, in 1898 a particularly fatal epidemic was prob-
ably introduced here by the large body of troops encamped near
the city.   This epidemic which extended into the latter half of
1899, has been so thoroughly studied and described by Dr. Wil-
liam B. French, in his report[1] to the Health Officer, that it will not
be drawn on for material for this paper, except to again report
the four cases (III, IV, V and VI), which were treated in the
Children's Hospital.   If my readers have not already read
French's masterpiece, I now commend it to them.

From time to time since that report, one or more cases have
been seen by different observers, but the disease has not again as-
sumed the proportions of an epidemic.

During the epidemic of 1898, I had an opportunity of studying
a few cases in private and hospital practice, but still realize that
the difficulties in differentiating this type from the several varie-
ties of meningitis are many.

The infectious nature of the disease can no longer be questioned,
although there are a few observers who claim that several micro-
organisms may be causative elements.   The weight of authority,
however, attributes the disease to the diplococcus intracellularis
meningitidis of Weichselbaum, which may be found in the menin-
geal exudate, in the diseased tissues of the brain and cord, and in
the cerebro-spinal fluid.   It is usually found within the cells,
chiefly the polynuclear leucocytes, in pairs or tetrads.   Gram's
method is used in decolorizing it, but its cultivation is difficult.
As the micro-organism is not pathogenic for guinea-pigs, inocu-
lation experiments are usually unsuccessful.

The organism may be formed in the nasal secretion.   The germs
may reach the cerebral meninges through the nose or the Eus-
tachian tube, but it is also possible for them to enter the blood
from the lungs or some distant organ or tissue and be carried to
the meninges.

If the patient dies in the early stage of the disease, the only
gross lesion found is an intense hyperemia of the meninges and
of the brain; but if the disease has lasted for three or four days,
pus is seen, macroscopically, under the arachnoid.   The purulent,
sero-purulent, and fibrino-purulent exudation is found in the sulci
along the vessels.   In some cases it is more marked at the base and

[1] Report of the Health Officer of the District of Columbia, 1899.

in others on the convexity of the brain. Large areas of the brain
are sometimes involved, but the meninges of the entire brain rarely.
The inflammatory process involves mainly the pia-arachnoid; the
dura is somewhat inflamed, and the sub-dural space is increased
by the fluid exudate. "The exudate also distends the lateral ven-
tricles, thereby flattening the convolutions of the brain by pres-
sure, and it traverses the perivascular spaces in the brain and
cord, and the neuroglia are swollen. In children chronic hydro-
cephalus may be established. Similar conditions are found in the
pia of the cord, usually posteriorly, and most pronounced in the
dorsal and lumbar regions. In chronic cases the lesions may ad-
vance and cause meningo-encephalitis and myelitis, with menin-
geal thickening, softening and disintegration of the cord"
(Rotch). The lesions in the tissues of the brain and cord must
be determined by careful microscopic examination. "They are
more marked in the prolonged or chronic cases. They are repre-
sented chiefly by slight dilatation of the ventricles with cloudy
fluid, by dilatation of the vessels of the ependyma and choroid
plexus, and by an accumulation of pure pus or pus and fibrin in
the posterior cornua of the lateral ventricles. The consistency of
the brain-substance is generally but little altered, but is softer
than usual, owing to the edema and dilatation of the ventricles.
Sometimes areas of softening and punctiform hemorrhages may
occur. All the blood-vessels of both the gray and white matter
are injected. In the cord the congestion of the vessels and the
diminished consistency of its tissues are the chief lesions. The
cord is always less affected than the brain. Proliferative changes
in the neuroglia are among the most characteristic microscopic
lesions in the brain tissue, but are rarely found in the cord. De-
generative lesions in the ganglion cells are usually present, es-
pecially in the very chronic cases."

"*Nerves and Ganglia.*—All of the cranial nerves are affected,
but the second, fifth, seventh and eighth are most extensively in-
volved. They are reddened, edematous, and infiltrated with the
purulent exudation which often follows the nerves to their for-
amina. The spinal nerves are also involved, and their roots lie
imbedded in the exudation. The spinal ganglia are injected and
edematous. Degenerative changes in the nerve-fibers are com-
mon. The inflammatory process may extend along the optic nerve
and produce a purulent inflammation of the orbit or eye; by ex-
tension along the fifth nerve it may produce a degeneration or
destruction of nerve-cells of the Gasserian ganglion, and by ex-

tension along the auditory nerve it may cause lesions of the internal ear, with or without acute inflammation of the middle ear."

Lesions of importance but non-characteristic are found in the lungs, spleen, lymphatic nodes, liver, kidneys and skin.

The stage of incubation is too uncertain to be of any significance.

In most cases the symptoms resemble those occurring in the other forms of meningitis. In a few cases such premonitory symptoms as malaise, general weakness and peevishness may precede the onset of the more pronounced symptoms. In the majority it begins suddenly with headache, nausea and vomiting, high fever (103° to 106° F.) and a rigor or convulsion. Soon the muscles of the back of the neck become rigid and painful on motion, particularly so if there is retraction of the head. Hyperesthesia of the skin, caused by irritation of the posterior nerve-roots by the exudate, is an early symptom. Delirium soon begins, when photophobia, irregularity and sluggishness of the pupils, ptosis, nystagmus and conjunctivitis are noted. The hearing is so sensitive that moderate sounds annoy the patient. The head becomes firmly retracted, opisthotonos is marked, the thighs and legs are flexed, the arms and hands are contracted, and the deep reflexes are exaggerated, but the superficial are diminished.

Pain, which is usually violent, may be referred to the frontal or occipital region, or it may extend over the limbs or back.

The "tache cerebral" is an inconstant sign and is not pathognomonic as it may be seen in other diseases.

Petechiæ are usually present and may cover the entire body, but large purpuric spots are rare.

The pulse is sometimes slow and sometimes rapid, but is usually weak. Polynuclear leucocytes may run as high as 30,000.

Kernig regards his sign as pathognomonic but it is too often found in other diseases to be of any diagnostic value. The Babinsky symptom is unreliable and inconstant. The spinal fluid, obtained by Quincke's method of lumbar puncture, may yield the diplococcus. Rotch describes "the spinal-fluid as more or less turbid, and in some acute cases a puriform deposit frequently settles to the bottom of the test-tube in a short time; there are numerous polymorphonuclear leucocytes (pus-corpuscles) and occasional smaller mononuclear lymphoid cells and fibrin. Groups of the diplococcus intracellularis are found in varying numbers in the protoplasm of some of the leucocytes. The fluid should be withdrawn at the time when the active symptoms are present, or the growth of the organism may fail to be obtained."

There may be drowsiness, stupor or coma in the same patient; and one condition may change to the other several times during the course of the disease. In one of my cases, the patient revived from a deep coma to a condition of fair intelligence a few hours before the final comatose state.

The types of the disease are the mild and fulminating in the acute, and the intermittent in the chronic cases.

The main object in presenting this paper is to draw attention to the differential diagnosis between epidemic cerebro-spinal meningitis and tubercular meningitis. If we accept the classical symptoms so uniformly described by text-books, there should be no difficulty in differentiating the two diseases. The sudden onset, intense headache, hyperesthesia, cervical pain and stiffness, extreme sensitiveness to light and sound, high fever, vomiting, constipation, the early appearance of coma, severe convulsions, slow pulse, leucocytosis and especially the presence of the diplococcus in the spinal fluid would leave no doubt as to the diagnosis from tubercular meningitis, which is characterized by the following symptoms : Gradual onset, low temperature, gradually increasing headache, photophobia not so intense, convulsions less marked, slow and irregular pulse and respiration, absence of leucocytosis, and tubercle-bacilli in the cerebro-spinal fluid. If to the first group is added the prevalence of an epidemic or exposure to the infection, and to the latter heredity or general infection, the diagnosis would be simplified. It is not, however, such clear-cut cases that one meets, so that it is the unusual or non-text-book type which misleads the unsuspecting. The similarity of the symptoms in each disease will not only puzzle the recent graduate, but the physician of experience.

In Case I the symptoms so closely resembled those of the tubercular form that the child was exhibited at my clinic as one of typical tubercular meningitis upon whom lumbar puncture was to be performed. You can imagine my consternation on seeing the syringe rapidly fill with the purulent fluid! I could now exclude tubercular meningitis.

On the other hand, just four months later, I exhibited to the same class a typical case of epidemic cerebro-spinal meningitis, and at the same time one of tubercular meningitis, the difference in their symptoms being so evident that the differential diagnosis was easily made.

The similarity in the individual symptoms, as well as in the two groups, and the absence of prominent symptoms of one dis-

ease and their unusual prominence in the other, tend to obscure the diagnosis.

Can the examination of the spinal fluid be depended on to settle the differential diagnosis? Not in all cases. In Case I such an expert as Doctor Rosenau, as well as our skilled assistants at the hospital laboratory, failed to find the organisms in their cultures, although the purulent-like fluid from the spinal canal was used. The cover-slip preparations made by Doctor Rosenau from smears from the inflammatory areas in both the brain and the spinal cord showed the typical diplococcus (slides exhibited), but it was of no practical value. So also is the examination of the spinal fluid in tubercular meningitis of little practical value in fixing the diagnosis, because it takes so long to cultivate the bacillus and the cultivation is so uncertain that in most doubtful cases the true nature of the disease is revealed by the necropsy long before the bacteriological report is received.

The duration of the disease varies from a few days to as many weeks. Fulminating cases die within 48 hours, ordinary cases last from 5 or 6 days to two weeks, and chronic cases for a few weeks or months.

This is one of the most fatal diseases of childhood, and if the patient recovers, his condition is usually such that it would have been better had he died. The mortality is variously estimated at from 40 to 60 per cent.

The treatment is similar to that which is applicable to the other forms of meningitis. Isolation is advisable, although its contagiousness has not been proved.

Case I.—(Adams.)   O. O'N., female, white, æt. 5 years, was admitted to the Children's Hospital, D. C., October 29, 1902. Her antecedent history is unimportant, and her previous history throws no light on the present illness.

On October 26, 1902, she gave evidences of her illness by complaining of pain when touched on any portion of the body or limbs; then followed retraction of the head, lying in one position until moved to another, screaming upon being moved; eyes rolled upward and backward until the irides were nearly hidden, constipated; and has vomited five or six times during past two days.

Oct. 29th.   She is well developed and intelligent looking, but has a facial expression of suffering. She lies upon the right side with the head greatly retracted. The skin is of normal color and is warm. Petechiæ, few in number, on the arms and legs. Lips are sore and fissured; the teeth are normal; the tongue is coated;

and there is dysphagia. She is noisy, restless, and frequently screams as if in intense pain; the eyes are rolled backward, the pupils are contracted and react slowly, if at all, to light. Upon admission at 2 P.M., her temperature was 100.3° F. (rectal) R. 26, P. 100. She struggled so hard to get out of bed, and was so noisy, that morphia was given hypodermatically as follows: gr. 1/32 at 4 P. M.; gr. 1/16 at 7 P. M., and gr. 1/16 at 10:30 P. M. She slept for a short time after each injection, after which she resumed her restlessness and screaming. At 4 P. M. she took an ounce of milk, and afterwards drank water with great difficulty.
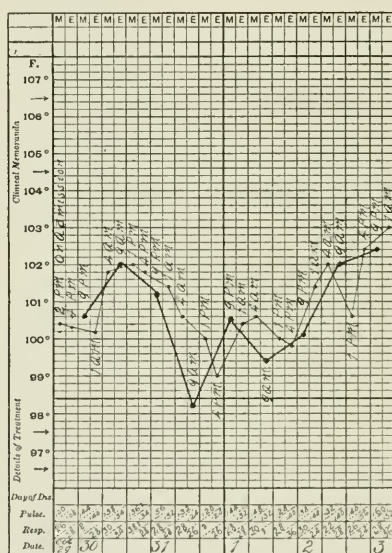
Temperature chart No. 1.—O. O'N.

Oct. 30th. She passed a very restless night, sleeping at short intervals. She refuses nourishment. She is in a stupor and is indifferent to her surroundings. When spoken to, she will answer and her eyes resume their normal position. When her position is changed, she shrieks. At 4 A. M., P. 134, R. 34, T. 102. At 4 P. M., in the presence of my class, I drew off by lumbar puncture 3 c.c. of fluid, the color and consistency of cream, which was immediately examined microscopically by Dr. Grasty, who found it filled with pus-cells.

Oct. 31st. She has taken from one to three ounces of milk, with difficulty every three hours, but has vomited it almost as soon

as taken. At 10 P.M. (30th) gavage was resorted to because of inability to swallow. At 4 A. M., P. 152, Temp, 101.2°, when it began to fall and reached P. 120, Temp. 98.2° by 9 A. M. The plantar reflex is normal; pupils irregular, the left the larger, and respond to light slowly. She smiles and the eyes resume their normal position when she is called by name; and she is not so restless. Doctor Rosneau, at 3 P.M., drew off a few drops of fluid by lumbar puncture.

Nov. 1st. The head is retracted and the spasticity of the neck is unchanged. The left pupil is dilated to twice the size of the right and neither responds to the light of a burning match. Pulse has varied from 128 to 148. She is apparently more intelligent, but fails to recognize her mother, although she seems to know the value of a coin. The plantar reflex is normal and the patellar absent. Sighing respiration. All the food, given by gavage and enema, is retained.

Nov. 2nd. The restlessness is so constant that morphia is given twice. Pulse weaker, and Cheyne-Stokes respiration marked. The temperature has fluctuated during the day.

Nov. 3rd. She grew worse during the day and died at 2:40 P. M.

Examination of spinal-fluid and the autopsy by Dr. M. J. Rosenau, Medical Director of the Hygienic Laboratory of the Public Health and Marine Hospital Service:

"The results of my examination of the case in question are as follows: I made a lumbar puncture about the fifth day of the disease for diagnostic purposes, at which time only a few drops of fluid were extracted. These, planted in ordinary media, gave a pure culture of staphylococcus pyogenes albus.

"The autopsy revealed a large patch of inflammation and purulent exudate in the subdural spaces on the right hemisphere of the brain over the motor areas. Cultures made remained sterile. More interesting appearances were found in the spinal canal. The posterior aspect of the spinal cord was congested and contained in the subarachnoid space considerable grayish-yellow purulent exudate. Cultures from here also remained sterile. Our cover-slip preparations made from smears from the inflammatory areas in both the brain and spinal cord showed large numbers of the ordinary polymorphonuclear leucocytes, some of which contained diplococci morphologically resembling the diplococcus intracellularis meningitidis of Weichselbaum.

"We cut sections through the spinal cord on a level where the

exudate was most pronounced and found that the anterior surface of the cord was comparatively normal and that the inflammation was confined to the posterior aspect of the cord. It was very plain, under the microscope, that the arachnoid itself was thickened, showing a considerable proliferation of large mononuclear endothelial cells. Between this and the pia, and contained in the subarachnoid space, was the exudate consisting of polymorphonuclear neutrophiles, some of which contained the above-mentioned diplococci. There was also some fibrin. The pia was very much congested, the vessels being engorged with blood and showing round-celled infiltration. The process stopped abruptly at the surface of the nerve matter of the spinal cord and did not dip down into the trabecula.

"The inflammation was certainly not due to the ordinary pus cocci, for they were absent both in the stained preparations made on cover-slips at the time of the autopsy and also absent from our culture media. It must, therefore, be presumed that the staphylococcus pyogenes albus which grew in our culture media made by lumbar puncture was a skin contamination. The diplococcus found in the cells of the exudate decolorized by Gram's and as it did not grow on ordinary media it is fair to assume that it was the specific cause of the epidemic cerebro-spinal meningitis."

Case II.—(Acker's.) M. S., white, female, æt. 7 years, was admitted to the hospital Feb. 20, 1903.

The child's parents are in good health; one brother died six months ago of typhoid fever, and a second brother died, probably from tuberculosis. Labor and birth normal. She was nursed during infancy and had normal dentition. She had pertussis during her infancy, but no other infectious disease.

Ten days ago she began to have chills, the chill and fever occurring about noon of each day. These symptoms have increased in intensity. In addition, headache, malaise and constipation. The first vomiting was to-day, having had three attacks. Retraction of the head and delirum have developed during the past 24 hours. The physical examination shows that she is well developed; she lies on her side; has an expression of pain, retraction of the head, and contraction of flexors of legs. The respirations are slow and irregular, otherwise the respiratory organs are normal.

The tongue is coated, teeth decayed, vomits frequently. She does not answer intelligently, but at times complains of pain, at others is delirious. She has twitching of the lips and tongue,

with slight contraction of facial muscles; has hyperesthesia of skin, especially over lower extremities. Legs flexed.

For the first few days after admission, her condition grew worse. Kernig's signs became marked, the head became more contracted, and the temperature fluctuated.

Feb. 26th. Marked improvement noted; talks intelligently; there is no delirium; can bring her head forward when told to do so.

Feb. 28th. Relapse noted. Cries out as if in pain, but complains of none.
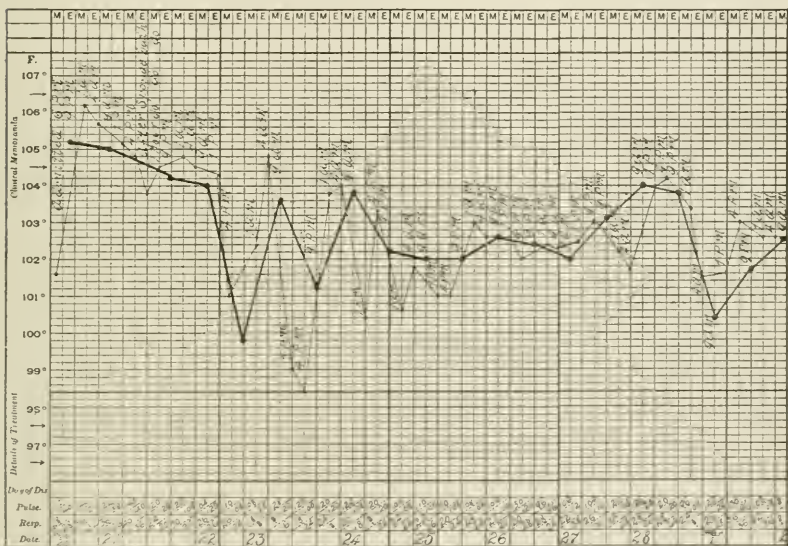
Temperature chart No. 2.—M. S.

March 1st. Stupor returned and she vomited several times. She did not sleep during night.

March 2nd. Wildly delirious and hitting and kicking with left arm and leg. She died at 9 A. M.

Lumbar puncture was not performed and a request for an autopsy was refused.

Doctor Acker had charge of the case and regarded it as one of epidemic cerebro-spinal meningitis, and I concurred in this diagnosis.

CASE III.—Æt. 18 months. M. C. Father died nine months ago; cause unknown. Mother in good health. No history of

tuberculosis. Child always in good health. Hygiene bad. Admitted to Children's Hospital May 25, 1899; sudden vomiting, abdominal pain, constipation, temperature 102.8°, pulse 140, weak and small, respiration hurried. Small area of dullness lower border left scapula; numerous fine dry râles throughout both lungs with roughened breathing. Digestive, glandular, and integumentary systems negative. Sleeps well, but cries as if in pain when moved. No pain on pressure over any part of spine. Head not retracted. Urine negative. May 27, sleeps a great deal; objects to being moved; no appetite; pulse weak and irregular; temperature 100° to 103.8°; 29th, much the same; 31st, about as before, with vacant stare, dilated and fixed pupils; temperature 102° and chest clearing up; June 2, about the same, except is not sleeping well, cries out as if in pain. Slight retraction of head this morning; no pain along most of spine, but back of neck seems sensitive; temperature has come down. June 6, temperature normal or below, pulse 88 to 120, since May 31. Cross and irritable and cries a great deal, though sleeping and taking nourishment better. Sat up in chair. June 8, walks about, but is weak; eats well. June 9, 4 P. M., temperature 104.7°, pulse and respiration irregular, latter as low as 12; irritable, screaming out, stupor. Urine negative. June 11, eyes fixed, open and staring; lies on back, hands clenched, feet drawn up slightly; muscles of neck rigid, head drawn slightly to right side; resists extension of leg and forced extension produces tremor of head and body; temperature ranging from 99.2° to 104.2°. No pain along spine on pressure. June 15, less drawing of head to one side, less stiffness of neck; temperature ranging lower; June 17 to 19, about the same; 21st, eyes open and staring, pupils dilated, head rigidly fixed, hands clenched, twitching of facial muscles and of arms and hands; urine involuntarily passed; 23rd, same, except temperature subnormal, feet extended and toes flexed; 25th, vomited food; unconscious, moaning cry; Cheyne-Stokes respiration; 29th, evident pain if joints are moved, other conditions same: July 1, urine shows a few pus cells; 3rd, pain on pressure over spine; slight convulsive seizure this A. M., a few seconds only; 5th, much the same, with increased muscular rigidity and twitching; 10 P. M., temperature 104.5°; almost clonic convulsions; midnight temperature 105.8°, heart tumultuous, head much retracted, legs drawn up and respirations shallow and slowing up. July 6, 1 A. M., temperature 106.5°;

2 A. M., 107.2°; 3 A. M., 109.2°, and temperature just before death at 4:30 A. M., 110°.

Autopsy (by Dr. William B. French, ten hours after death).—Body greatly emaciated. Rigor mortis moderate. Abdominal contents normal except slightly enlarged mesenteric glands, and ten or twelve drops of pus in pelvis of each kidney. Gross appearance of kidneys normal. Ureters and bladder normal. Heart normal. Hypostatic congestion of lungs over posterior surfaces; bloody fluid oozed out on section but vesicles contained air. Dura adherent to cranium on either side of great longitudinal fissure, and vessels of dura engorged. Vessels lying in sulci surrounded by slightly opaque fluid, especially on lateral and under surfaces of brain, not, however, so well marked as in several autopsies. Pons, medulla and structures forming base of brain covered with moderately thick layer of fibrino-lymph extending into left lateral ventricle in small quantity; right ventricle free of lymph; choroid plexus congested and opaque. About 4 ounces of turbid cerebro-spinal fluid escaped on opening ventricles and from upper part of spinal canal. Gray matter of cortex and vessels on surface of ventricles injected. Outer surface of dura of cord covered with chocolate-colored exudate of fibrino-lymph entire length, but especially plentiful in upper dorsal portion. The diplococcus intracellularis found on blood serum tubes inoculated with cerebro-spinal fluid and in the sediment of a culture tube partly filled with the fluid.

CASE IV.—Æt. 5 months. F. C. Mother in good health, Hygiene good. Never vaccinated. Had slight cough of unknown duration. Night of May 28, 1899, restless and wakeful. Admitted to Children's Hospital morning of 29th; rectal temperature 103.6°, pulse 140, conscious; no herpes nor eruption of any kind. Rectal temperature very irregular, varying from 101° to 106° in four hours. Muscles of arms and legs rigid, spasms of fingers and toes; nystagmus, pupils irregular, reacted, convergent strabismus, no photophobia. Muscles of neck rigid; could tilt child by head without bending neck. General hyperesthesia. Some distension of abdomen. Unconscious twelve hours before death, on June 1. Vomited only once, twenty-four hours before end.

Autopsy (by Dr. William B. French, June 3, forty-eight hours after death).—Abdominal and thoracic contents normal, except slight hypostatic congestion of lower lobes of lungs and slightly enlarged mesenteric glands. Superficial vessels of brain engorged. A possible deposit of lymph over base of brain and medulla.

Chocolate-colored, dirty-looking lymph between dura of cord and pia. Slight effusion of cerebro-spinal fluid at base and in spinal canal. No fluid in lateral ventricles. Vessels of cord injected. Scrapings of exudate on cord failed to show diplococcus intra-cellularis.

CASE V.—Æt. 11 months. M. C. Dispensary patient, Children's Hospital. Mother living. Hygienic conditions bad; crowded alley house. First sick June 8, fever and vomiting; 9th, fever, but no vomiting; convulsive movements of arms and legs, feet extended and toes flexed. Pain on handling. On 10th unconscious, and died 12:15 A. M., of 11th.

Autopsy (by Dr. William B. French, fourteen hours after death).—Body fairly well nourished. Rigor mortis absent. Dura adherent to skull; had to dissect it off; opaque and thickened. On removal of dura the entire convexity of brain found to be covered with an unusually thick, decidedly greenish-yellow purulent lymph, extending forward over surfaces of frontal lobes to bottom of great longitudinal fissure, passing well back to junction of brain and cerebellum. On the lateral surfaces of the parietal lobes the greenish color of the lymph faded to the ordinary yellow and became thinner. Base covered with fibro-lymph, following down cord, as far as visible, through foramen magnum. A mass of greenish lymph one-quarter inch in diameter found lying free between pons and cerebellum, the latter also covered more or less with this same greenish lymph. Small quantity of reddish cerebro-spinal fluid in ventricles and spinal canal. A dirty-looking chocolate-colored exudate between dura and cord as far down as lumbar region. Vessels of surface of brain greatly engorged and choroid congested. Blood serum culture, fluid from lateral ventricle, shows fine specimens diplococcus intracellularis, some forming chains of four to six members. Whitish ring at surface of pig-fetus bouillon shows some organism in apparently pure culture, but proved to be mixed on carrying it over.

CASE VI.—Æt. 9 years. M. C. Family history good. Hygiene poor. Six years ago had a severe diphtheria, resulting in a mastoiditis, operation and partial relief; ear continuing to discharge at intervals since that time. On admission to Children's Hospital, July 17, 1899, very slight swelling over right mastoid; constipated; temperature 100.2°, pulse 90; respiration 38, full and regular; severe pain in right ear. July 19, temperature slightly higher; ear paining; 21st, temperature 102.4°, pulse faster; cries out frequently with pain in ear; 22nd to 25th, tem-

perature 103.9°, pulse and respiration increased ; vomited ; pain extending about ear ; 27th, about the same ; 29th, temperature falling, pulse weak and irregular, respiration labored and insufficient ; abdomen retracted ; no pain on pressure over spine ; no retraction of head nor stiffness of neck muscles ; occasional spasmodic movements of feet and hands ; 31st, temperature 104.1°, pulse feeble and irregular ; restless night ; pain in and about ear ; August 2, the same ; 3rd, temperature, 4 P.M., 99.3°, pulse failing, eyes fixed and staring, gasping respirations ; convulsive movements hands and feet. Died 7 : 30 P. M.

Autopsy (by Dr. P. C. Riley, resident physician Children's Hospital, eighteen hours after death). Lungs, slight hypostatic congestion, and on left side a few pleural adhesions. Abdominal cavity negative. Brain engorged with blood ; arteries of pia much distended. A large quantity of clear fluid in ventricles and at base ; vessels and nerves surrounded with fibrino-purulent exudate extending laterally along base in a strip about 2 inches wide on either side of pons and medulla, both of which were covered with a tenacious fibrino-purulent lymph. Spinal canal filled with a dirty chocolate-colored purulent exudate which surrounded the cord and membranes and followed the vessels and nerve trunks on either side ; vessels of cord engorged. Slides made from this material showed the diplococcus intracellularis.

PREGNANCY AND CRIME: A MEDICO-LEGAL STUDY.[1]

BY

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THE genital functions of woman at all their stages have a marked influence on the moral condition. With the first appearance of menstruation organic and intellectual disturbances arise, the first being disordered digestion and divers forms of neuralgia, while the second show themselves by low spirits, melancholia and a tendency toward suicide. Up to this time the organs of reproduction have remained in a kind of apathy, participating little if any in the general sensibility of the female. But from this time on

[1] Read by invitation before the New York Medico-Legal Society, October 20, 1903.

the uterus becomes the seat of an intense concentration of excitability, which appears to attract all the forces of life towards it. As the great Van Helmont has said, "*Propter solum uterum, mulier est id quod est*"—that is to say, an essentially nervous being.

At their first appearance the menses form a true diseased condition which is sometimes indicated by various acts promoted by lying and ill feeling. In a celebrated case which occurred many years ago in France, a young nursery maid, thirteen years of age, killed the child for whom she was caring. The physician who was ordered to examine the criminal found that she was menstruating at the time of the crime, and the jury rendered a verdict of not guilty on account of the medical decision, which showed that there was a disturbance of the will power which suppressed the free will of the individual, and consequently relieved her of all criminal responsibility.

Now in pregnancy the uterus becomes still more markedly the center towards which the action of the general sensibility becomes directed, and although gestation constitutes an essentially physiological phenomenon, it is, nevertheless, nearly always accompanied by a general disturbance which attacks all the functions of the organism. It is not exactly what can be called a morbid condition, but oftentimes the temporary morbid feelings which accompany it become more marked and prolonged, so that this physiological act may place the subject in a condition bordering on true disease. The uterus which is increasing both in size and weight, produces a permanent condition of fatigue. It presses on the iliac vessels and retards the return of the venous blood to the heart, while at the periphery it keeps up a venous stasis which is denoted by a bluish tint of the feet and hands, as well as by the appearance of varicose veins of the lower limbs. The cerebral circulation becomes less active and the patient will frequently complain of headache and a tendency to faint.

When the uterus reaches above the umbilicus it presses on the diaphragm and prevents the expansion of the thorax during respiration, which act is greatly hindered, resulting in an insufficient quantity of oxygen entering into the blood and an accumulation of carbonic acid within the system.

The digestion becomes abnormal because the pregnant uterus from the beginning of gestation has a direct sympathetic influence upon the gastro-intestinal functions. Generally speaking, the pregnant woman digests badly, and this dyspepsia may result in anemia. The composition of the blood becomes changed; it is

loaded with toxic products, and if the liver or the kidneys are at all diseased severe functional disorders will arise. They present themselves in the form of a series of nervous symptoms, running from a simple malaise up to the most grievous derangements, from a slight change of character to serious mental affections.

The pregnant woman at this time possesses a more delicate and sharper sensitiveness. Her imagination becomes exalted much to the detriment of her judgment, while the will and the passions are markedly modified. A kind of animal instinct reigns over women at this time, so that the slightest causes of excitement may result disastrously. In many cases we find these unfortunate creatures possessed of the most ridiculous desires, with tastes as changing as they are peculiar, and even women who are the most reasonable and possessed of considerable will power will often show a number of capricious fancies as well as the most extravagant irregularities of their sentiments. Reason vainly tries to regain its empire, and is in reality a dethroned monarch whose power has become disregarded.

The gentleness and kindness of character often disappear, and the patient, sometimes giving herself up to antipathies or to most singular aversions, will oftentimes see her love for the most cherished ones change to hatred, or she may even succumb to the most bloody desires, her reason being unable to triumph over her.

In strong females, those rare specimens of humanity who show no nervous predisposition, the changes produced by pregnancy are hardly, if at all, evident. The functions of pregnancy take place without producing any important disturbance. But the greater number of women do not present these resisting powers, and it is well to point out some of the causes of the present day which react badly on the female organism producing that nervous excitement which pregnancy only exasperates.

Women do not reason, and they only understand those things which touch the heart directly. They have little conviction, and only have affections and tendencies. Being avid for emotion, they seek it everywhere, and the present education of young women furnishes them with an abundance. Young women go to the theater to see the morbid up-to-date society play and there receive their first lessons of immorality and open their hearts to the soft joys of passion. At the theater they see the amorous intrigues of the soft-voiced tenor and the tender equipées of the young leading man. They return home and are seized with a vague desire to love. Before the lying scenes of the play, which

is not real life, their sentiments become exalted and unnatural. It is at the playhouse that women become initiated in all the temptations which beset the human heart, in all the secrets and in all the tricks of passion. There she has revealed to her how one is seduced and how one succumbs to her seducer; how to deceive her husband and other equally profitable lessons.

How can it be reasonable to believe that the young girl remains indifferent before burning scenes of tenderness and of amorous despair? On the contrary, her imagination becomes exalted to such a point that she has no longer any repose and sleep becomes disturbed by more than suggestive dreams.

On the other hand, we have the up-to-date novel which all well-bred young women devour, sometimes openly, sometimes in the silence of their boudoirs. In order to be in the social train, the young woman of to-day reads without shame all forms of immorality, presented with art in some cases, in others with a crudity which is heart-rending and follows the scenes of debauchery described with the utmost care and detail by the author. Saturated with this unhealthy literature, the sensual passions of woman can only be increased and rendered dangerous.

To what has already been said of the drama and of the literature of the present day, we may add three other causes of debilitation in the human race, namely, syphilis, alcoholism and tuberculosis. The wealthy female is also weakened by her luxurious and lazy mode of life. She is rendered nervous by late hours and the incessant emotion with which she is generously fed by the theater and novel, and in many instances more stimulation is acquired by the daily glass of some liqueur made in a French or Italian monastery, and often, also, a small hypodermic injection of morphine.

With the poor woman, the causes of nervous troubles reside in a too intense life, as well as in the thousand and one preoccupations for the struggle for existence in a more or less unhealthy dwelling, accompanied by an insufficient and defective nourishment. Under these conditions, pregnancy, both among the rich and the poor, becomes a dangerous function which causes profound changes to take place in the organism and wakes up and exasperates nervous tendencies which nearly all women foster, and from this arise disorders of the intellectual and sensorial faculties. In order to make them more clear, these disorders may be divided into three groups.

In the first group may be included slight disturbances which manifest themselves by certain peculiarities of character and a

change of humor occurring rapidly and without any explanation. The greatest joy may suddenly change to a doleful sadness without any motive and the woman gives herself up to the most extravagant capriciousness. Taste may become slightly perverted and the patient seeks highly spiced foods or slightly acid fruits—things that she would never eat when not pregnant. Neither reason nor will is in any way changed, but, nevertheless, the patient will tell you that she would act under the impulse of her taste or her desire were not her will force strong enough to resist it.

In the second group, both judgment and will power are partially affected, and under these circumstances a woman will do what she should not do for the simple reason that she does not understand what she is doing, or because she is unable to control herself and in this category may be placed the famous question of the desires of pregnancy. It is generally admitted that pregnant women often possess a true perversion of the appetite and the articles of food which some women crave are most astounding. Now, although these women have no true disorder of the intellectual faculties, they are, nevertheless, governed by irresistible desires. They are fully aware that the desires are abnormal and still without any motive or interest they give themselves up to the morbid passion which dominates them.

The sensorial or moral disturbance is quite limited and only attacks isolated points of intelligence and sensibility. There has been a very interesting case reported where a woman became hydrophobe during the first four months of each of her pregnancies, which reached the considerable number of eleven. As soon as conception had taken place, she drank only small amounts of water and little by little her horror for liquid reached such a point that the unfortunate woman abstained from taking any drink and could not even bear its sight. In another case, a young woman pregnant for the first time was seized with a dislike for her husband, whom she had always loved, and it was with much difficulty that she was able to control herself. In another instance, a young woman pregnant five months suddenly felt such an aversion for her house that after many unsuccessful attempts, and in spite of all her reasoning powers, she was obliged to leave and remain in the country during the entire progress of her pregnancy. In another case, a woman, who, before her pregnancy was especially fond of her child, began to detest him as soon as she became pregnant. She told her husband that if the child was not removed from her a misfortune might occur. The child was accordingly sent away to school, but

after two months of calm the poor woman was again taken with the same hatred for her child, though this hatred disappeared after a few months. Many other examples, showing to what point sympathy and antipathy may be exaggerated during pregnancy could be given, but on account of their similarity it is needless to do so.

Then, again, we have other examples showing with what impatience and vivacity a pregnant woman may feel what is called a desire or an irresistible inclination which leads to criminal acts although they are independent of any other mental lesion. One of the most common desires is that of stealing, commonly called kleptomania. Sometimes this theft is without reference to the usefulness of the article stolen, and includes without distinction all kinds of objects. As an example of this may be mentioned the case of a servant girl in whose room was found a large collection of bric-à-brac, all the things being perfectly useless to her.

In other cases the desire is only partial and has for a motive an imperious craving for food which pushes the patient to satisfy her impulse by stealing the desired object. Such was the case of the wife of a high judicial functionary in France, who stole a roasted chicken from a store because, on account of its size and delicious aroma, it had lighted an instantaneous desire to eat it. In another case a lady enjoyed the greatest happiness in eating everything that she could steal while doing her marketing. In another case a lady stole three hundred men's cravats, but afterward she returned to the store and paid for them, offering excuses.

In all the cases here mentioned one must recognize that the impulse does not reside in the excitation of the desire, but in an attenuation of mental resistance to it. One may ask why thefts in the large department stores are more frequent than formerly, and in reply it may be said that probably at the present time the display is made with greater care and with more taste than ever before in order to excite a desire in women to purchase, and when females who are well balanced mentally often exceed in their purchases the ultimatum of their purse, it is not at all surprising that a pregnant woman cannot resist the desire of shop-lifting.

A well-known authority, Dr. Jörg, has endeavored to establish a distinction between these irresistible desires, examples of which are numberless. There are some, according to this authority, who are entirely carried away by food, while others have a tendency to steal silver and jewels as well as toilet articles. The first class, according to Jörg, can be readily explained because a pregnant uterus produces an organic hyper-activity which has a direct in-

fluence over the entire digestive system, oftentimes causing vomiting and dyspepsia; but it may also frequently produce an increase of the appetite and an increased stimulation of the digestive functions. Now, if this be admitted, it may readily be conceived how a stomach thus excited may covet a particular article of diet with great ardor. But pregnancy and the changes that it produces in the female organism in no way justify the opinion that pregnant women are dominated by an irresistible desire to steal on the highways, such as pocket-picking, etc., and when a pregnant woman has been caught in such an act she has been led to commit the crime not by her pregnancy but by a natural criminal desire. ·

Now, in point, both of medicine and law, I would say that distinctions drawn by Jörg, relative to the irresistible desires of pregnancy, are devoid of practical value. Whether the case be one of larceny of a chicken or a cravat, the woman irresistibly craves the object and has not the mental force to resist the desire to steal, and I would repeat once again that in all these cases the crime does not arise from the excitation of the desire, but from the attenuation of resistance against this desire.

For the time being I will not discuss the degree of culpability and will only mention the fact that in both the first and second group of patients the will has not been sufficiently disturbed to remove the entire free will of the female, for the simple reason that she understands her acts and is simply powerless to say "no" to her impulse.

In the third group which we will now take up, the faculties are all disturbed, and here we are dealing with insanity in all its degrees and variations. Alienists at the present time do not consider that disturbances of the mind inherent to the particular condition of pregnancy are sufficient to explain criminal acts and it is proper to refer these mental troubles to some personal defect or to the patient's hereditary antecedents. It is quite beyond all doubt that pregnancy in itself does not cause alienation, but it is the predisposing cause and the starting point of more or less serious disorders of the intellect. These disorders are the result of nervous conditions which I have endeavored to study in what has already been said. From the cases that will now be quoted one may gain some idea as to how far the intellectual faculties of a pregnant woman may become deranged.

A patient, during each of her eleven pregnancies, always thought that she was going to die, and finally poisoned both her daughters so that they should escape a similar misfortune. In another case

a woman killed her husband in order to eat his flesh ; and that she might satisfy her ferocious appetite for a longer period, she salted what remained of the body in order to preserve it. In another case the wife of a shoemaker killed her four children and then hid herself. When arrested she admitted several thefts which had no interest for her and were accomplished in spite of herself. As she had been told that vicious tendencies of a pregnant woman would be inherited by the children, she decided to kill them so that they should not become thieves.

A female 22 years of age became taciturn and low spirited at about the sixth month of her pregnancy ; she refused to take food and complained frequently of headache. One day when alone in the house she threw her neighbor's baby into the fire and then seated herself on a bench. When arrested, she could not explain her crime, but said that something forced her to throw the child into the fire without knowing why. During her examination she declared that she always loved her family and was happily married. She was very fond of her neighbor's child and had no reason for committing the crime.

A quiet and industrious woman of good character became pregnant. Suddenly she became possessed by a violent repulsion against one of her aunts whom she dearly loved. Without any cause she flew at her aunt, throwing her violently to the ground, and then gave her several blows. An instant later, she was so ashamed of her action that she attempted suicide. Before her pregnancy, this woman had been subject to attacks of mania and during the menses she was often tempted to do some bad act, but her conscience prevented her from accomplishing it. She endeavored to control herself, and if she found that she was becoming unable to do so, she took all precautions to prevent herself from carrying out her impulse.

In another case a lady was seized with an attack of impulsive mania during her pregnancy. She stated that on a certain day while sharpening a pencil her child entered the room and she was suddenly seized with a violent desire to kill him. She reassured herself and could not understand what had given her this inspiration. The desire again repeated itself, and seeing that she could not resist, she put her knife rapidly to her throat, saying, "It is better for you, wicked woman, that you die." This case demonstrates with what intensity the sensitive faculties may become disturbed and with what irresistible vivacity impulses may manifest themselves. We have here a struggle in the conscience of this poor

mother and seeing that her will led her on to crime she endeavored to resist it, but the impulse was too strong, and just as she was going to carry out her evil design, in a supreme effort, she cut herself in order to do no harm to her child. Other similar cases have been recorded in the annals of medicine.

A young man wedded a girl eighteen years old and they lived happily together, but on several occasions he was astonished at certain peculiar phrases that she uttered. For example, on one occasion while they were both at work, the wife said to her husband without any cause for the remark: "We will both die this year." Having finished his work, the husband returned home to supper at about six o'clock, and after finishing his meal he went to the sideboard to eat the remainder of a plate of cooked prunes. He found that they had a very bitter taste, and remarked to his wife that they were either spoiled or poisoned. His wife, who was at the time a few months pregnant, only replied evasively and hurried out of the house. An hour afterwards the husband experienced all the symptoms of poisoning. The next day pieces of sulphate of copper were found in the pocket of one of the wife's dresses, and when questioned she admitted that she had endeavored to poison her husband, but when asked what motive had caused her to commit the crime she replied that she could not understand why this idea had come to her mind, and that she had taken resolutions without being able to resist the impulse. She explained how she had mixed the copper in the plate of prunes as well as in her husband's tobacco. Medical examination and the trial demonstrated that the accused had a difficult character with a great tendency to sadness, that she showed little intelligence, and at times even appeared idiotic. Her husband, himself attributed her criminal act to her pregnancy, and asked to have her brought home. The government, however, upheld the accusation and questioned up to what point pregnancy had changed the moral liberty of the accused. The jury, however, after a few minutes' deliberation, rendered a verdict of not guilty.

It goes without saying that not every pregnant female experiences the various morbid conditions which I have rapidly considered in the foregoing pages, but generally speaking, a pregnant woman presents an intermediary moral condition, quite distinct from insanity, but far removed from a perfect intellectual equilibrium, and it is easy to conceive that the condition of moral and physical malaise which accompanies the majority of pregnancies may remove from the intellect a certain part of its vigor

and distinctness and exercise an influence on the normal condition which will be all the greater the more unfortunate be the concomitant circumstances.

In women advanced in years a pregnancy may be the subject of shame when the woman has adult children, but on the other hand there are women happy in every respect whose approaching labor is another token of happiness for the future, and nevertheless, they experience very variable symptoms. An unknown distress is their entire preoccupation and throws them into the most complete despair. If they are already mothers, they are frightened by recollections of the past and by the prospective of the future. They become convinced that they are going to die and this becomes a fixed idea which is the starting point of melancholia. Others who are still more unfortunate are thrown into that despair which follows being forsaken by the man who seduced them. In all these unfortunate circumstances accompanying a pregnancy, a disturbance of the intellectual and affective faculties arises which may weaken the moral liberty of the individual. These disorders may reach such a point that the patient presents some form of insanity in which case she becomes in point of view of the law entirely irresponsible.

It is not always an easy thing to decide the limits which separate mental disease from certain moral conditions which influence the determinations, without, however, changing the conscience and the liberty of acts. Between these two conditions will be found intermediary ones which may diminish the responsibility of the individual and become the occasion of attenuating circumstances because it is evident that there is a vast distance between sadness or more or less peculiar appetites and some mental affection which shows itself by criminal acts. The large proportion of cases of irresistible desires belong to mental disease unless they are acts which were voluntarily accomplished with the criminal in full possession of her mental powers.

In the first group of patients mentioned in this paper, we have instances of disturbances of the intellect, but the woman possesses an entire reponsibility in the point of view of the law because she both sees and feels what she does and she has sufficient mental force to resist the performance of criminal acts. The pregnancy does not deprive her of her free action to that extent that she cannot resist those acts which she knows to be both punishable and blamable. Women who have invoked pregnancy as a cause of their crime in order to be acquitted have imposed

upon the courts in most instances. But it is none the less true that gestation has modified to a slight extent the intellectual faculties, and for this reason attenuating circumstances should be admitted.

As to those women who in cold blood endeavor to justify their guilt by giving as a pretext a pregnancy, which is sometimes real and oftentimes imaginary, they are completely liable for their acts. From the simple fact that they themselves base their defense on an irresistible impulse produced by a pregnancy proves quite sufficiently that they first of all are perfectly cognizant of the gravity of the acts they have committed, and I shall endeavor to point out that it is of utmost importance for the prosecution to see that the medical experts appointed to examine the criminal should never neglect a minute examination in order to detect any simulation on her part. A woman who simulates always acts in a spirit of interest, vengeance, or pecuniary gain; she acts in the possession of her full mental liberty, her will power is in no way changed and if the court should show any indulgence toward the criminal it is simply because the sex is taken into consideration. It is evident that the trial judge should show far less clemency where simulation has been practiced than where the woman admits her crime without endeavoring to set up a defense. The latter, although in full possession of her free will, has been slightly influenced by the presence of a pregnancy which shows itself by a minor disturbance of the moral faculties.

In the second group, the disturbances are more marked and here the pregnant female is in an intermediary situation in which a defective volition is more manifest. We are not here dealing with only a modified, simple physiological condition, as in the first group, characterized by a greater impressionability with a very slight change in volition, which leaves the moral liberty absolutely intact. In the class under consideration, the woman should be placed in that category of insane patients, who, after periods of lucidity, present a condition of nerve failure in which the will succumbs to the impulses without any struggle. The moral faculty which produces, directs, modifies or prevents moral or physical acts which are under its control at times confused or destroyed, and the woman whose volition is no longer completely normal, becomes for this very reason incapable of governing her acts. Such, for example, was the case of the woman who was arrested for having committed a number of thefts, usually consisting of toilet articles, silks and underwear, in various large department stores in

Paris. An examination of the patient's rooms revealed about 250 silk neckties among other things which were of no earthly use to the accused. All the stolen objects were thrown into the drawers, and the woman paid no more attention to them. When questioned, the accused replied that she was pregnant and with each pregnancy, this being the third, she was seized with an impulse to steal, which she could not resist. Legrand du Saule, who examined the culprit, expresses himself as follows in his conclusions: "In this case the morbid impulsion is not simulated. As a pathologic phenomenon, it has existed. The theft was committed suddenly, without reflection and was absurd and without any possible profit to the accused, like any theft committed by a maniac. On the other hand, the theft was not an isolated phenomenon but was part of a group of physical, intellectual, affective and moral characters and belonged to a group of special perturbation, evidently produced by the pregnancy."

In this particular case pregnancy had given, so to say, an impulse to the entire organism, momentarily disturbing reason, provoking imperious disorders and giving place to almost unconscious acts. The responsibility in this case is greatly attenuated.

In the third group the mental disorders reach their extreme limit and a properly conducted medical examination will leave no doubt as to the existence of a true paranoia. In this group we have instances of enormous thefts, pyromania, ideas of persecution, homicide and suicide. The woman is deprived of all volition, she no longer knows what she does and she is incapable of reasoning with herself on the act she is about to commit. Nothing can stop her, an instinct forces her on and she accomplishes the most blamable acts or the most odious crimes without having the slightest suspicion of their true gravity. In other words, she is simply a subject of mental disease, no longer possessed of her free will and whose responsibility is absolutely nil. This raises the question as to whether pregnancy may produce mental disease, an irresistible desire to commit various excesses which fall within the limits of the law.

In a decision relative to a case of theft committed by a pregnant woman which occurred many years ago at Halle, the Faculty of Medicine of that city, when consulted regarding the case, arrived at a very wise conclusion, replying that they could not answer affirmatively as to whether a pregnancy could cause an impulse to theft without making a restriction, for if they did, pregnancy would become an ordinary excuse for all thefts com-

mitted by women, and if it were admitted that this influence could absolutely dominate pregnant women, many crimes would remain unpunished. On the other hand, if the influence of a pregnancy on the moral condition of a woman was not recognized, many innocent people would be condemned.

An expert, when called to give an opinion regarding the mental condition of a pregnant woman who had invoked her pregnancy as an excuse for some petty larceny or a crime, should make abstraction of this fact and should limit his examination to her mental condition, disregarding the question of pregnancy completely. This is certainly a delicate proposition, but it will be rendered easier if the slightest suspicious circumstances which have preceded the crime, which have followed the act and have formed and led up to it are noted, on the one hand, and on the other by a very minute examination made into the hereditary and personal antecedents of the accused. Pregnancy cannot serve as a direct proof. Its influence on the organism and the intellectual and moral faculties is well known, but it is impossible in each particular instance to fix a limit to this influence without carefully examining the temperament of the accused and particularly the circumstances under which the offense or the crime was committed. It is essential to ascertain whether or not there have been cases of insanity in the family, whether or not there exist nervous stigmata or alcoholism. It is most important to ascertain the former mental condition of the accused and also her moral disposition during the pregnancy. In point of fact, it is very infrequent that a lesion of the intellect is present singly, and usually it will be found either in the acts committed by the criminal or by an examination of the functions of intelligence and affective sentiments that there are certain circumstances which might corroborate or remove all suspicion of mental disease.

If, after a careful examination, a physician concludes that the patient is mentally wrong, in other words, insane, absolute irresponsibility of the accused should be admitted, but if, on the other hand, it is found that she did not act under the influence of a lesion of the intellect, the examination should then be carried on into the circumstances which accompanied the theft, if that is the offence, and the social situation of the accused, the value of the objects stolen and the motives which led up to the offence. In case of murder, it is of the highest importance to ascertain whether or not there was premeditation on the part of the accused.

Morally, and in all justice, it would be impossible to condemn

a woman who had stolen several hundred men's cravats, and other similar things useless to her, but the woman who should receive just punishment would be, for example, one who stole jewelry from various shops and then mutilated it so that its identity could not be discovered. In this case, the culpability is more than evident and consequently it is incumbent to discover if the so-called irresistible desires did not serve to satisfy some passion or some interest. There are cases where the guilt is so evident that no hesitation could be permitted. For instance, in one case a pregnant woman who had been accused of attempting to force the door of a room where a certain number of precious objects were placed, gave for her defense a violent jealousy of her husband who as she thought was locked in this particular room with one of his mistresses. Other similar cases could be quoted but such arguments of defense are not worthy of discussion. It is, however, quite permissible to invoke pregnancy as an attenuating cause in certain cases.

871 BEACON STREET.

OVARIAN CYSTOMATA, WITH REPORT OF AN UNUSUALLY LARGE MULTILOCULAR OVARIAN CYST.

BY

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(With two illustrations.)

THE object of this paper is to report a case of ovarian cyst of interest on account of its size, to which is prefixed an outline classification of the varieties of such cysts. The pathology is in some instances still a matter of dispute.

Cysts arising from the uterine adnexa have their origin commonly in one of the following structures: the egg-bearing portion of the ovary or oophoron; the medullary portion located at the hilum or paroophoron, and the parovarium, located in the mesosalpinx.

Cysts of the oophoron have three types, (*a*) Follicular, (*b*) Glandular, (*c*) Dermoid.

Follicular cysts are the most common. They are usually the result of inflammation and may be induced by any process that will cause a thickening of the tunica albuginea and prevent rupture of the Graafian follicles. They are then simply distended Graafian follicles. The condition is also called cystic degeneration of the ovaries owing to the large number of cysts usually present. Such cystomata are almost invariably multilocular, a mono-cyst being nearly impossible. It frequently happens, however, that several cysts growing at the same time will coalesce, their walls being absorbed from pressure. They are limited in their growth, very infrequently exceeding the size of a large orange. The usual type is an ovary about the size of a small lemon containing several larger cysts and studded with smaller ones.

Glandular cysts, also called proliferating, are what are usually referred to when speaking of ovarian cysts. It is generally conceded that they have their origin from the tubules of Pflüger, which in the embryo dip down into the ovary, and from which the Graafian follicles are developed. Their persistence is abnormal, and their cystic degeneration is generally conceded to be the origin of proliferating glandular cysts. In their development the ovary is always obliterated. They are invariably multilocular in their early stages, but absorption of the cyst walls may result in the formation of single large cyst cavity. Their growth is unlimited, and cases have been reported weighing as much as two hundred pounds. The wall is of fibrous tissue and presents a glistening white appearance. It may contain other varities of cysts, and occasionally a corpus luteum will be found, showing that the ovarian tissue is capable of functionating when the ovary is grossly diseased. The cavity of the cyst is lined with cuboidal cells which under the influence of pressure become stratified and finally disappear. The cuboidal cells have a tendency to develop crypts which proliferate and give rise to a honey-comb mass often found on the interior of the tumor. The contents present every variety in consistency and color, from a thin transparent fluid to a jelly-like mass, yellow, green, brown or black. The growth is usually intra-peritoneal with a well-developed pedicle, but may be intra-ligamentous. The pedicle is composed of the ovarian ligament, broad ligament and Fallopian tube.

Dermoid cysts are those which have epithelial elements.

Cysts of the paroophoron have only one type, the papillomatous ovarian cysts. They are characterized by the presence of warty

growths on the inner surface of the cyst-wall which has a marked tendency to rupture. When this occurs the papillomata invade the general peritoneal cavity. These cysts are very frequently bilateral, and the direction of growth is intra-ligamentous in about three-fourths of the cases. They are usualy unilocular, and rarely attain a size larger than an adult head, as they rupture previous to that time. The contents are usually clear and of a watery consistency. Great care has to be exercised in their removal as the slightest leakage of fluid will cause an invasion of the peritoneal cavity.

Cysts of the parovarium have no connection with the ovary. If a normal mesosalpinx is held stretched between the light and the eye the tubes forming the parovarium can usually be demonstrated. They consist of three parts: a horizontal tube called Gärtner's duct, a series of vertical tubes running toward the hilum of the ovary, and several outer tubes running from Gärtner's duct to the free border of the broad ligament. Cysts of the parovarium originate from the vertical or horizontal tubes. They may be either simple or papillomatous. They are almost always unilocular, and their direction of growth is between the layers of the broad ligament. The ovary is not involved and can be demonstrated as a separate structure unless it has been altered by pressure. They rarely attain a size larger than a child's head. The Fallopian tube is usually greatly elongated and extends nearly around the circumference of the tumor. The wall is quite thin and in the early stages often transparent. The contents are a clear limpid fluid of a low specific gravity. In the papillomatous variety the walls are thicker.

The case which I wish to report belongs to the variety of the proliferating glandular multilocular ovarian cysts.

The patient came to me in November, 1902, and presented the following history:

Mrs. J. P., æt. 54, white, widow. Healthy as a child, menstruated at 19, suffered in back and hips when unwell, pain extending down the back of her legs. Never remembers the time when she did not have pain in the region of her left ovary. Was well between periods and did not suffer any pain. Periods normal and regular. Was married at 21, had 3 children, oldest 31, youngest 22, no miscarriages. Periods have continued normal up to present time except that recently flow has lasted a week. After birth of youngest child suffered with pressure for some time and used a pessary for about 3 years after.

History of Present Illness.—About nine years ago was taken with a sudden pain in abdomen and called in a physician, who told her she had a tumor. After a while pain ceased but tumor continued to grow. Health was not impaired until about a month ago, when she was seized with violent pain across upper abdomen accompanied with violent nausea. From that time on these symptoms continued intermittently. Was able to walk about until five months before, when she was forced to use crutches. Has been

Fig. 1. Large ovarian cyst.

confined to room only for past three weeks. Tumor has increased rapidly in size in past six months.

Physical Examination.—Patient spare but fairly well nourished. No lesion of heart, lung or kidneys. Abdomen distended by immense tumor completely filling cavity and dropping down half way to knees. Patient unable to lie on back. Measurement of girth not taken. Percussion note flat except at upper portion of flanks. Faint wave of fluctuation. By vagina could distinguish nothing but tumor filling pelvis.

Operation was performed on November 28, 1902. Incision in median line through peritoneum to wall of cyst. Hand introduced to search for adhesions which were slight on anterior aspect. In-

cision enlarged to umbilicus to allow me to reach to top of tumor.
Dense adhesions to the transverse colon, omentum and stomach
were separated. These were evidently responsible for severe pain
and vomiting. Presenting cyst was punctured with trocar and
syrupy, chocolate-colored fluid evacuated. Cyst wall grasped with
traction forceps and brought out through wound as cyst col-
lapsed. As the cyst was delivered restraining adhesions were
broken up which were found to be most dense along the left meso-
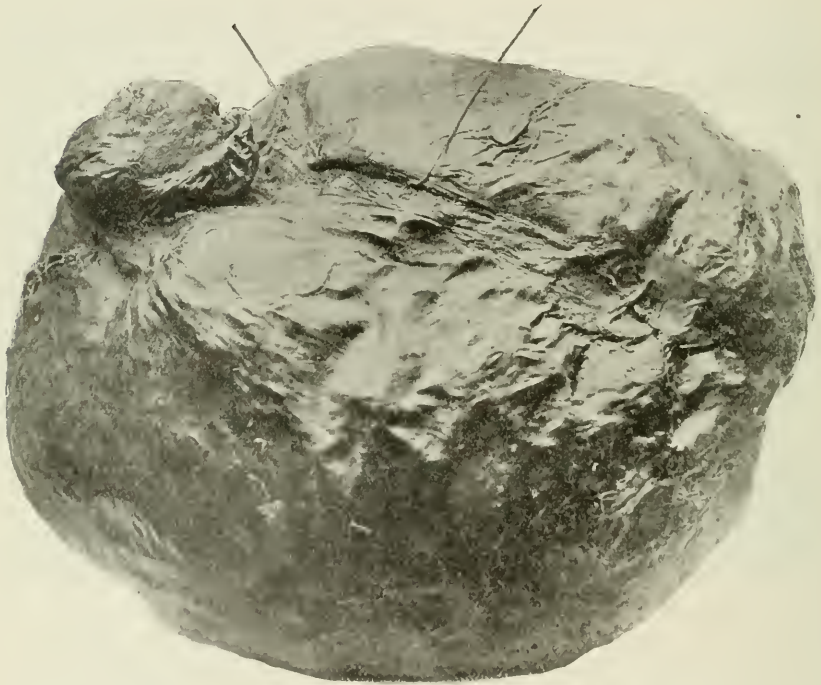
Fig. 2. Ovarian cyst weighing over seventy-six pounds.

colon. As one cyst was evacuated the trocar would be thrust
through the dividing septa until all cyst cavities were evacuated
with the exception of a few small ones. The tumor was then
delivered and found to have originated from the left ovary and
attached by a broad pedicle which was tied off in sections. The
uterus and right ovary were found to be practically normal. The
cavity was flushed with salt solution and the wound closed with-
out drainage. There were eight and one-half gallons of fluid, and
the tumor with contents weighed seventy-six pounds six and one-

half ounces. The patient made an excellent recovery, was walk-
ing in four weeks and has recently returned from a trip of several
thousand miles.

While this tumor is not as large as others that have been re-
ported it is rather uncommon to see such large tumors at the
present day. The surgeons do not give them a chance. In this
case the patient had steadfastly refused operation until forced to
it by the urgency of her symptoms.

17 N. Fifth Street.

PSEUDO-VAGINISMUS.

BY

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In forming the title of this paper, I am well aware of the fact
that vaginismus does not constitute a pathologic term, but a clini-
cal one only, and one not very well defined at that. Still, I think
I am not in discord with the majority of gynecologists, in
assuming that vaginismus is a condition arising from traumatism
without subsequent infection. This traumatism is due to repeated
unsuccessful attempts at cohabitation and leads in due course of
time, to most violent spasms of the constrictor cunni and the
whole perineal musculature, at each attempt at intercourse. In
very well pronounced cases, these spasms are excited by the mere
consciousness of the patient that any object is approaching the
parts, for instance, the examining finger of the physician.

The two cases I report, claim some interest besides their peculiar
features, because they furnish another illustration of the fact that
whenever matrimony remains without satisfactory results so far
as cohabitation or fertility is concerned, a priori, the female part-
ner is accused of being at fault and the husband is never inclined
to admit any shortcomings on his part, even resenting any sugges-
tion of a mere examination.

Case I.—Woman nineteen years of age, married for three
weeks, general condition satisfactory, physique apparently extra-
ordinarily good. The history at first elicited was a conglomerate
furnished by mother, mother-in-law, aunt and husband, and fur-
nished the following points : Repeated unsuccessful attempts at

cohabitation which after a week or so became very painful to the woman. These attempts were given up for the last ten days. The examination of the patient revealed the following conditions: Save for the inflammatory reaction, perfectly normal conditions of the external generative organs. The hymen thin, elastic, annular, slightly fimbriated, admits easily first phalanx of the index finger. The urethral caruncle was cyanotic and swollen, purulent secretion from the urethra; the area adjacent to the external urethral apening occupied by three so-called Jadassohn's abscesses. The copious purulent discharge caused a slight eczema way down the raphe. Any infection reaching higher up could not be ascertained. Microscopical examination proved the infection to be gonorrheal. Even after all these facts were impressed upon the husband's mind, it took quite an energetic effort to make him submit to an examination and to give a true history of his case. He had to admit that for years he never had a satisfactory erection, that the ejaculation always took place ante portas, in short, he had all the typical symptoms of irritable weakness. Local examination showed the presence of one stricture at the anterior-posterior junction, and another a short distance back. The posterior urethra and the prostate furnished muco-purulent secretion containing gonococci. While the inflammatory conditions in the woman subsided very promptly under the usual treatment, the husband could not be persuaded to undergo treatment.

CASE II.—Woman, twenty-two years of age, married for ten days. Usual history of unsuccessful attempts at cohabitation which, in spite of all the pains were not given up until the day before examination. Local examination: The whole vulva situated rather low, abnormally near the coccyx so that a very short perineum resulted. The caruncle swollen, discolored and sugillated. The external urethral opening dilated so that the finger tip can be easily inserted. Three or four superficial tears in its periphery. No incontinence. Hymen annular, of normal thickness and elasticity. It is quite evident that this, not so infrequent, abnormal location of the vulva brought the urethra at first in the line of attack. Therefore, the dilatation of the urethral orifice and the subsequent lesions. Husband, as examination proved, in perfect condition. A short rest and soothing applications restored the female parts in short order to normal condition, and after that, appropriate advice led to the satisfactory consummation of matrimony.

It must be regretted that in such cases, for a long time,

the advice and help of all kinds of female relatives is resorted to, so that things have time to turn from bad to worse, while the bodily sufferings of the unfortunate wife reach the highest point. In addition, the patient, as a rule, is forced into a condition of melancholy because she is always accused of being the guilty party. False modesty on the part of the patient, or the still prevailing disinclination of many physicians to make a local examination, may also retard appropriate medical aid. Only a thorough and rigid examination of both partners will lead to cognizance of the prevailing conditions, thus preparing the ground for successful therapy.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of Sept. 18, 1903.

The President, CHARLES S. BACON, M.D., *in the Chair.*

AFTER calling the Society to order, President Bacon directed attention to the great loss the Society had sustained in the death of Dr. DeLaskie Miller, a member, and also in the death of Dr. W. W. S. Playfair, the great London obstetrican. He spoke of the distinguished services these gentlemen had rendered in developing and advancing the science and art of obstetrics.

DR. GUSTAV KOLISCHER read a paper entitled

TWO CASES OF VAGINISMUS.[1]

DR. J. CLARENCE WEBSTER.—Mr. President: Dr. Kolischer has done well to call our attention to this subject. I am afraid that we must all, more or less, plead guilty to forgetting the part played by the husband in these cases.

I recall a case of great interest in which attempts at coitus had been unsatisfactory, owing to the intense distress it caused the woman. These attempts were carried on for about a month, and then ceased. Four years thereafter the husband told me about the case. He spoke of their happy life, but said it was a great source of discomfort that they could not live normally, and he gave me the impression that he had been very considerate. I said to him: Why do you not have your wife examined by some person who could undoubtedly right the matter? Some time afterwards, however, another physician told me that the husband was incapable of intercourse and had suffered for years from such a condition as Dr. Kolischer has described.

[1] See original article, p. 821.

Dr. Joseph B. De Lee.—There is one point in the paper which brought a thought to my mind as to the position of the vulva in one of the cases. I believe the essayist said that the position of the vulva was nearer the sacrum. That condition I have noticed not seldom in women in labor, and I have noticed, furthermore, that they are more likely to have a perineal tear when the vulva is situated lower down than when it is located higher up. This is a point I have not seen written about except in connection with a contracted pelvis.

Dr. Charles S. Bacon read a paper entitled

OBSTETRIC NOMENCLATURE.[1]

Dr. Joseph B. De Lee.—I can echo the sentiments of Dr. Bacon and say that I have felt the need for a more concise and, at the same time, more comprehensive nomenclature, especially for calling and designating to the student mind the various positions and presentations. With the exception of a few additions, however, I have found that the nomenclature decided upon by the International Medical Congress at Washington in 1887 is a practical one.

I disagree with the essayist in regard to the use of the occiput to designate all the positions, or all the atitudes of the head when it presents. I think the student, at least, would have difficulty in carrying in his mind the position of the head and its degree of deflexion and flexion, if he were to use the occiput always as the point from which to form a mental picture.

The point Dr. Bacon makes about the station of the head is very well taken. While I have never written or spoken on the subject before, I have taught the following scheme to students, and they follow it and practice it very well. The importance of determining the station of the head cannot possibly be exaggerated. I believe if I were to tabulate the cases of errors that I have discovered, both in my own work and in consultation work, in regard to the mechanism of labor, I should say that three-fourths of the errors that have been made and three-fourths of the operations that have been undertaken that have led to bad results, are due to the fact that the obstetrician did not determine the station of the head.

Next in frequency would be the fact that the obstetrician did not determine the position of the head.

In order to get a medical student to understand what I am talking about, after telling him the importance of determining the station of the head, I have always used the term, "the degree of engagement." I say the head was "in the inlet," when the biparietal diameter, the largest diameter, was in the inlet, but had not passed it. The head was then supposed to be fixed on the inlet, but not engaged. A second term is that the head was "engaged," which means that the bi-parietal diameter had passed the inlet, and was in any place from the plane of the inlet to the

[1] See original article, p. 763.

narrow pelvic plane, which runs through the ischial spines. When the head had passed the spines and had come down to the out-let of the bony pelvis, the head was said to be "at the outlet" of the bony pelvis. And, finally, when the head had passed the outlet of the bony pelvis and distended the soft parts, it was said to be on the perineum. It was "engaged;" it was "at the outlet;" is was "on the perineum."

These positions are pretty nearly the same as those described by Dr. Bacon, perhaps with a little variation in the geography, which clinically would cut very little figure. On that point Dr. Bacon and I are agreed. Any Latin term which will express clearly the various degrees of engagement or station is desirable. I have always used and taught English terms.

There is another point I want to bring out, although it is not original with me, but which was brought forth at the Congress of 1887, namely, a distinction or definition between position and presentation should be carried out. Presentation means that por-tion of the child which presents at the inlet, or is in the line of di-rection, or is surrounded by the girdle of resistance. Position is the relation of any arbitrarily selected point in the presenting part of the pelvis to the four quadrants of the pelvis. Under-standing, then, by position or positio the relation of any arbitrarily selected point to the four quadrants of the pelvis, we have at once a mind picture of the relations of the baby and mother, and, at the same time, we have an indicator as to what is going to be the mech-anism of labor. This arbitrarily selected point in the pre-senting part is called the "point of direction," and this point is one that follows the direction of the force, pro-ducing changes in position with reference to the mechanism of labor. With this classification we have these advantages. Take, for example, occipito læva anterior, we have presentation and position given; the occiput is the point of direction. The small fontanelle, for clinical purposes, is sufficiently close to the occi-put to be taken as the point of direction. Then, if the student is taught that all positions of deflexion, that is, all abnormalities of the mechanism of the head, are brought about, first, by deflex-ion of the head and, second, by lateral inclination, he comes very near understanding the mechanism of labor.

In face presentations the chin becomes the point of direction, and follows the mechanism that the occiput did in occipital presen-tation. In brow presentations the root of the nose becomes the point of direction.

As to the position of the lateral inclined attitudes of the head, I hardly think a special nomenclature is desirable. If, in the in-clined attitudes of the head, such as anterior parietal bone presen-tations and posterior parietal bone presentations, the student is taught that these are abnormal, that the mechanism is abnormal because the conditions accompanying it are abnormal, he will not need to settle on any given classification or nomenclature.

To sum up, the stand I take in regard to the subject of nomen-

clature would be this: First, the Washington nomenclature is very satisfactory. Second, that the additions proposed by Dr. Bacon and by Mueller of station or engagement are well taken. The word station is better then the word engagement, because we have to use the latter when the head is really not engaged, so that the word station is the more preferable term to use. Perhaps, we might add the word transverse for certain positions. For example, it was formerly taught that the head always entered the pelvis in an oblique diameter but experience has shown that it often enters in a transverse diameter. A Russian, whose name I cannot now recall, in one of *Volkmann's Vorträge*, writes on this subject of the head entering the pelvis in the transverse diameter. I have found that to occur quite often myself, so that I have added for the designation of this position the word transverse, and we speak of a left occipito-transverse and a right occipito-transverse. If an examination is made at the time the head enters the pelvis, we say that this is a left occipito-transverse or a right occipito-transverse. Perhaps with these additions there is very little to be added to the Washington nomenclature.

DR. GUSTAV KOLISCHER.—The paper of Dr. Bacon is certainly a very timely one, and shows the demand which is keenly felt by those who are engaged in obstetric theory and obstetric teaching, for a new nomenclature. Undoubtedly, there is not only a lack of system and clearness in the usage of obstetrical terms, but, also, a deficiency of terms in the English language. There is always more or less confusion in using the words "presentation," "attitude," and "position." "Attitude," for instance, should only be called the relation of the fetal parts to each other. We should not speak of the attitude of the head if we refer to its relation to the bony pelvis. The student first taught that attitude is the relation between parts of the fetal body, bacomes confused if in the next place we talk about an attitude of the head in relation to the pelvic frame. Dr. Bacon has very well defined under what conditions we can speak about the so-called "station" of the head. So far as the other terms are concerned which he proposes for general acceptance, I should like to say this: Experience shows that all ponderous terms which contain too many anatomic designations will never be generally accepted. An important point would be to define by the use of certain terms, the station of the fetal head in the beginning of labor in certain presentations. If, for instance, we have a face presentation, the relation of the head to the bony pelvis materially differs from the relation after it is in the medium planum, or low down resting against the perineum. Such a term which would correspond to the German word "Einstellung" is lacking in the English language. Another confusion exists in the nomenclature of the slightly deflected head presentations. While the majority of obstetricians will denominate the different categories of these presentations from the part of the fetal head which is lowest, and in the directing line, others derive the nomenclature from the relation of the anterior part of the skull to the pelvic

frame, thus confusing the categories of normal or abnormal rotation with deflexion and inflexion. Dr. DeLee objects to Dr. Bacon taking the occiput as the leading point in all not decidedly deflected head presentations, and afterwards, contradicts himself by saying that he always teaches medical students to pay most attention to the occiput in these cases. In fact, we cannot determine and denominate the presentation of the head in such cases from any other point on the head. I wish to state expressly that the presentation is always determined by this point of the head which at the particular stage of labor is the lowest one. This denomination and determination has nothing at all to do with the line of circumference, the girdle of resistance, or the pelvine parts at which the head in this particular moment strikes. An occiput presentation will be such whether the largest circumference is engaged high up in the pelvis, or whether the head is way down in the pelvis resting against the perineum. Dr. DeLee tells us that he teaches his students that all deflected presentations originally are occiput presentations. I do not think that this statement could be upheld. A slightly deflected presentation may become transformed under favorable circumstances, or through appropriate intervention into an occiput presentation, but which force should induce an inflected presentation to change into a deflected one? It is one of the leading points of all theories concerning deflected presentations, that the transformation of the deflected into an occiput presentation necessitates an intermediate stage in which the fetal axis is elongated. But after inflexion once took place, the intra-uterine and intra-abdominal pressure obviously will not permit an elongation of the fetal axis again. In as long as we do not strictly adhere in all instances to what is meant by position and attitude, and presentation; in as long as we have not a certain system, thoroughly applied, of deriving our terms from certain denominators, and in as long as the obstetricians will confound entirely different categories of obstetrical occurrences, there will always prevail confusion. We furthermore, are in urgent need of a term determining the presentation of the lowest part of the fetal body in the beginning of labor.

DR. RUDOLPH W. HOLMES.—I think to reconcile all medical men to one thought is going to be as insurmountable as to find the original sin. To come out now and try to put a new nomenclature before the profession is going to be impossible. It will be published; and that will be the end of it. What is necessary is to have our present nomenclature refined and defined more clearly. If we begin again on a new track, the general practitioner will not be able to grasp the nomenclature. The general practitioner has got to be taught things as they are, but a little more refined, and if he can grasp these refinements of nomenclature a little better, a great deal will be done to advance obstetric practice.

My conception of presentation is this: It is that part of the fetus that presents at the brim. If it is the head, it is a cephalic presentation. If it is a shoulder, it is a shoulder presentation. If

it is a breech, it is a breech presentation. The position is the relation of the arbitrary denominator to a particular point on the mother's pelvis.

In a normal labor with an occipito left anterior the head is down; the vertex is in the middle of the brim, *i.e.*, there is a vertex presentation and the occiput points to the left and to the front of the mother. It is an exception to have an occipital presentation as such. It is really a misnomer to say an occipito left anterior. It is the vertex that presents. The occiput is merely the denominator of the presentation.

Face presentations bring up the point which Dr. Kolischer discussed. It is very unique to have a primary face presentation, that is, before the woman has had any labor pains, or where the contractions of pregnancy have not been marked. Undoubtedly these primary face presentations will be found more frequently when a routine external examination is made during the course of pregnancy. A face presentation is almost invariably a product of labor. That this is so, is evidenced by the fact that an occipito right posterior presentation is four times as likely to terminate as a mento left anterior, as is an occipito left anterior to be converted into a mento right posterior, that is, a mento left anterior is just as frequent as a mento right posterior. The reason why so often you cannot find the chin when the face is above the brim is because the face presentation is not fully developed; it is still in the transitional stage of brow presentation. There are inherent difficulties, even in most multipara of getting the hand sufficiently high to reach the chin; therefore, the face presentation not being fully developed, the finger naturally comes in contact with the brow rather than with the chin. I feel, therefore, that the denominator always should be the index of the presenting part. For example, the denominator should be that part of the presenting surface which is the determining factor in the mechanism of the labor for the particular position: in the normal vertex the occiput is the logical denominator—the back is not necessarily in direct relation to the occiput in the course of descent and internal rotation, the chin is the logical denominator for face cases, for the mental point in relation to the pelvic points is of transcendental importance in the happy outcome of the case; the sinciput is the denominator for brow cases. One has but to consider the varied current methods of denominating brow cases to see how confusing it is to use any other denominator than the sinciput in the nomenclature to brow presentations: for instance, sinciput left anterior has been described as an occipito right posterior brow, or back to the right brow, or a mento left anterior brow: when the four brow positions are thus described you easily can imagine the confusion to the student: if the back, or occiput, to the right is used as the denominator for a sinciput left, anatomic parts are brought into consideration which have no direct, intimate, relation to the mechanism, and are misleading.

Another thing: the normal attitude of a baby in pregnancy and

labor is one of flexion.   Every frozen section made shows this, with one exception, and that was in a case of occipito posterior. Therefore, if frozen sections teach anything in the development of our knowledge of the mechanism of labor, it is the one thing that flexion is not a product of labor, but is the result of the attitude which is developed in advancing pregnancy.   Too often moulding is confused with flexion.   The specimen removed from Dr. Willard's case of a dwarf beautifully shows this and that it was between the fifth and sixth months.   The little fetus is curled up in the uterus and the head is flexed.   The head had already gone into relation with the trunk which would permit the uterus to hold the baby in the smallest compass possible.

As regards the station of the head, Williams has shown that as soon as a portion of the head goes past the pelvic brim the head begins to be fixed.   But this is entirely a relative term.   The fixation depends upon the size of the baby's head, the size of the pelvis, and the rigidity of the soft parts.   The fixation, other things being equal, will occur in a primipara earlier than in a multipara with normal pelvis.   When the bi-parietal and suboccipital bregmatic plane has passed the brim the head is engaged.   Occasionally one may find that the head is away down on the pelvic floor, and because the conditions are so favorable one can still push the head up, but the definition is correct that the head is engaged because the bi-parietal and suboccipito-bregmatic plane has passed the brim.   Per contra, excessive moulding, as in a justo-minor pelvis may suggest deep engagement when really fixation alone is present.   For teaching purposes I have been accustomed to use the method of describing "station" which is essentially that given by Williams—head floating, head fixed, head engaged, head on the pelvic floor, and finally distending the perineum.

I feel that the thing is to refine our present nomenclature rather than to largely replace the old by new terms.

DR. J. CLARENCE WEBSTER.—I do not think the example of the Congress of 1887 is a very encouraging one, because I think very few obstetricians have paid much attention to it.   I know that the editor of a recent text-book on obstetrics, when asked if the nomenclature adopted by that Congress should be used, replied, "Oh, no, let us stick to the old thing."   I presume that as long as there are national differences, there will be differences in nomenclature.   We go to one country and, if we are driving horses pass each other on the left side.   In another country we go to the right side.   We get there all the same, if we do not have a collision. It would be difficult to establish a uniform method of passing on the streets, which would be adopted by all nations.   So it is in medicine.   We find that differences arise in modes of description, personal, local, and national and that it is exceedingly difficult to agree as to uniformity of nomenclature.   Any effort that is made to simplify teaching methods is praiseworthy but I am not persuaded that Dr. Bacon's suggestions tend to simplification. I believe that the adoption of his propositions would mean greater

difficulty, certainly for those who are beginning the study of obstetrics.

I would like to refer to a number of his suggestions. Take, for instance, his desire to alter the definitions of the conjugates, terms applied to certain saggital diameters of the pelvis. I do not see that any term can be clearer than "anatomical conjugate," which means the diameter joining the middle of the promontory and the upper margin of the symphysis. The "conjugata vera" is the diameter between the promontory and the nearest part of the symphysis, *i.e.,* a point slightly behind and below the upper margin of the symphysis. I prefer to use the term "obstetrical conjugate" rather than "conjugata vera," because the diameter represents that part of the saggital mesial diameter of the pelvic inlet available for the passage of the fetus. I do not think there is any term we can use which would be more satisfactory than "obstetrical conjugate."

With regard to the term "digonal conjugate," I do not see why it is necessary to change that because there is no confusion of thought whatever regarding it. There is only one digonal conjugate described and I do not see the advantage of substituting another for it. But Dr. Bacon's chief suggestions relate to the terms "attitude," "presentation," "position," and "station." It seems to me that if we have a clear understanding of attitude, presentation and position, and define them accurately, we cannot do very much better. Attitude, as Dr. Kolischer has stated, is the relation of the parts of fetus to one another. There is no difficulty whatever about that.

Presentation is the relation of the long axis of the fetus to the long axis of the mother or uterus. The axes may coincide, either the head or breech being lowermost; they may be at right angles or oblique to one another. There are varieties of each of these. Thus when the head is lowermost, either the vertex, sinciput, face, occiput, or parietal region may be in relation to the brim.

There has been more confusion with regard to the definition of position. I believe that it should be considered as a relationship between some definite point on the presenting part of the fetus and a definite area of the pelvic brim. Berry Hart has criticized the method of denominating positions adopted by the Washington Congress because it is not quite uniform in its application. He says that the fetal denominator should be that part of the presenting portion which is the important leading part in the mechanism of labor. It is certainly advisable to employ such a system, especially for the purpose of establishing a comparison between the different mechanisms. In vertex presentation we take the occiput, and if we follow it right through labor it is easy to understand the movement of the whole head. In face presentation, we use the chin to denominate position, because it is the chin which we follow; in the mechanism it is the chin which descends and rotates corresponding to the occiput in vertex cases.

When we come to breech presentations we find that the denomi-

nator does not correspond to that selected in the other presentations and it is this which Hart has particularly criticized. The breech has various positions ,and they are denominated with reference to the sacrum. That is quite wrong, according to Hart, and I agree with him, because we do not follow the sacrum in studying the mechanism, but the anterior hip of the fetus. You are all familiar with what is called Hart's law, applying to the movement of internal rotation. A certain portion of the presenting part in descending, strikes the sacral segment of the pelvic floor on its own side, and owing to the resistance of the latter is pushed forward. Thus in an ordinary vertex presentation, the occiput is rotated. In a pelvic presentation it is the hip and not the sacrum which strikes the sacral segment and is rotated. Hence Hart has introduced a nomenclature which substitutes the hip for the sacrum in the denomination of the various positions of a pelvic presentation. I do not know how Hart's suggestions can be improved. If they were adopted uniformity would be established in the consideration of the various mechanisms of labor. Students could easily understand the descriptions. If we abolish the present nomenclature and attempt to describe all mechanisms in reference to the occiput, much confusion would be created.

With regard to Dr. Bacon's reference to "station" I think there is more to be said of a favorable nature. We are lax in description there. I have employed the terminology which Williams has employed, but it is not exact. There is, however, reason for this inexactness, namely, the difficulty of measuring the diameters and circumference of the head, or of establishing accurately the relation between them and the pelvis in the early stages of labor.

Dr. Bacon (closing the discussion).—I would like to say that I did not pretend this system to be entirely a new system of nomenclature.

I do not think the remarks of Dr. Holmes, if applied to the paper that has been presented to-night, are appropriate. There were no absolutely new suggestions offered, and it was simply with the idea of refining or improving the nomenclature that I brought the matter up. Everybody admits the necessity for improvement, and everybody admits the great differences between writers in this and other countries and between different writers in the same countries. It is that which is confusing. We can arrive at some results if we get clear ideas, and the essential thing is to get clear ideas.

Let me take up first the remarks of the last speaker. Objection has been made to the use of the word conjugate. We are sometimes in doubt in using the term conjugate or conjugata vera. whether the obstetrical or anatomical conjugate is meant. If every one would use the term obstetrical conjugate, which would mean the minimal diameter, then we would have no reason to change, but because the term is not always used in the same sense it might perhaps be well to follow the French. However, it is not an essential point. As I stated, the three things that are most

important are : (1) To carefully separate the concepts of presentation and position ; (2) to use a uniform designator for position ; and (3) to introduce the term station to denote what has always been denoted less exactly by the term engagement.

I have become convinced myself, and, from the remarks that have been made this evening, I am strengthened in my conviction that the distinction between presentation and position is important. In some of the remarks it has been evident that the two terms are used without a clear separation. Of course, we all know what attitude means, and the two essential things in the mechanism of labor are attitude and position. If we had terms to denote exactly the attitude, it would be perhaps desirable to do so, but we have not got them. So we use the term presentation from which we at once infer the attitude ; that is, we know the relation of the head to the trunk, as soon as we see that we have a vertical, a sincipital, or frontal presentation. We need to use the word presentation simply to show us the attitude of the child. Position may mean the relation of a part of the child to any part of the obstetrical canal. The relation of any one point, the back or occiput to this cylinder is position, so that in that sense we might say the relation of the vertex to the bottom of the cylinder is position. Strictly speaking, it is, and so when we say the child lies in a longitudinal position, we are quite accurate ; that is, the vertex or the head points toward the bottom of the obstetrical cylinder. That is, strictly speaking, position, and that would include what we mean by presentation, but it is confusing in practice to use position in this extended sense, and so I say it is better to leave that out and limit the definition of position. When we use the term presentation, there is implied what the relation of the fetal axis is to the maternal axis, what the relation of the presenting part is to the bottom of the obstetrical cylinder, so that we can leave out of the nomenclature what is not essential. When we come to define position, we can say it is the relation of the designating part of the child to the side of the obstetrical cylinder—front, back, or any of the quadrants. That is what position means, and I think we should restrict its meaning to that. When we do this, it is not necessary to talk about a directing point, as there is confusion in the use of the term direction point.

I think Dr. Kolischer, who, in general, agreed with me, misunderstood a little what Dr. DeLee said when he used the term. Still if he did, it was not surprising. The determining point to designate the denominator means the point which is in relation with the sides of the obstetrical cylinder, not the point that is in relation with the bottom of the cylinder. That is the part which is first touched, and so when we speak of a directing point as meaning the presenting part, we at once introduce confusion, and this Dr. Webster did.

Hart also introduces confusion in that way. Let us call the point that is first felt the presenting part, not the directing point. As physicians, all we want to know is that it is the presenting part ;

we do not say it is directed toward the right or left. If it is the presenting part, it is directed toward the bottom. It is confusing when you speak of a part that is directed down as the directing point that marks out position. If we separate these two ideas exactly, presentation and position, and define position as the relation of the part to the side of the obstetrical cylinder, it is better to use one point to denote position. We might say back. Veit uses only back; the dorsum is the denominator. Mueller does the same thing practically, and the back is desirable to use as the denominator when the head is not engaged, or when we do not know the position of the occiput. This term, however, is not quite as exact as the occiput. The head may be rotated at the neck and the occiput be directed in a different line from the middle of the back, and because the occiput is more important than the back, it is better when we can to use the occiput as the denominator with advanced station. All we want to do is to define position. Webster and Hart do not use the presenting part or the projecting point to define position in all cases. How is it in cases of inclined attitude when the parietal bone is presenting? You do not say parietal bone *position*, but you should, if you follow that rule, just the same as you say the hip position instead of the sacrum. I do not see any reason for using different designators, because all we want to do is to determine the relation of the child to the side of the obstetrical cylinder. I assure you, that if you will make that experiment with students, you will find it simpler; they will grasp the relations better than when you use a number of different designators.

In regard to the use of the term station, it means that this nomenclature is an effort to put into language something that can be easily recorded. You will all admit that the term engaged is somewhat indefinite. You cannot define what engagement means. Can you reach an agreement upon what engagement means? That is the difficulty. So if we introduce this term we can define it exactly, and it is simply to make the record on the sheet or board before the class complete. You can record your observations on the record sheet each time an examination is made. You can record the exact findings, and that simple requirement of a record always enables us to make more accurate observations.

There was one point made by Dr. DeLee that I want to speak of for a moment, because it is a common but erroneous statement that the head is engaged; according to my nomenclature it has entered the pelvis or it is in the pelvic cavity, if the bi-parietal diameter passing through the parietal tuberosities has passed the inlet. The circumference of the head which is encircled by the girdle of resistance, for example, the inlet or the vulva keeps on increasing until the suboccipito-frontal circumference is reached and the head has not passed through the inlet or out of the vulva until that suboccipito-frontal circumference has passed through. The plane of the suboccipito-frontal circumference is different from that of the circumference in which lies the bi-parietal diameter.

The diameter has not so much bearing as the circumference in a perfectly plastic head. It is the big circumference that must pass before we can say that the head slips either into the pelvis or out of it. We know how it is at the vulva—that large circumference has to pass before the head is out.

Considerable has been said in regard to some points that I do not need to bring up at this time. Some of the discussion of the different attitudes is not appropriate to the subject of the nomenclature of position and station.

DR. ROBERT T. GILLMORE read a paper entitled

CATARRHAL ENTERITIS IN WOMEN SIMULATING PELVIC DISEASE, WITH REPORT OF CASES.[1]

DR. T. J. WATKINS.—I was much interested in the history of these cases, and particularly in those that suggested the existence of some pelvic disease. I feel that all of us at times have been negligent in not looking sufficiently after the general condition of our gynecological patients, and possibly paying too much attention to some minor pelvic difficulty. I feel very certain that disease in the intestine is frequently mistaken for some minor pelvic disease, and one sees quite often patients who are given for long periods of time pelvic treatments where the main difficulty is some general condition. It reminds me of a mistake a practitioner once made in this line. The case was referred to him by an internalist. The patient had a relaxed vaginal outlet; she had a large heavy retroflexed uterus; she was extremely neurasthenic. The patient was subjected to a vaginal suspension of the uterus and to a repair of the perineum. She was in the hospital three weeks, after which she returned home. Some months afterwards, her chief trouble was ascertained to be a tape worm. She was relieved of the tape worm, after which her general health rapidly improved.

I have not personally encountered as many cases of catarrhal enteritis as Dr. Gillmore has. I think possibly it may be due somewhat to the fact that I have not paid as much attention to that disorder as I should have done.

DR. GUSTAV KOLISCHER.—I am diappointed in consequence of the disagreement between the title of the paper and its contents. I expected to hear something about the pathologic changes in the female generative organs due to infection, coming from the inflamed intestines. This is a topic which attracted a great deal of attention in the last year, and already has produced quite a literature. Instead of that, the doctor reported the histories of patients either suffering from the well known symptoms of auto-intoxication due to atony of the bowels, or of patients who suffered from very well pronounced enteritis. He even dwells at length on the treatment of enteritis. I certainly cannot see why a patient sent to a gynecologist for examination, must necessarily suffer from

gynecological trouble. The essayist, furthermore, tells us about a very well known fact, that there are quite a few gynecologists who will insert tampons as long as they are paid for it. He states another fact which, unfortunately is true, that there are men who will operate without any other than a mercenary indication.

I am sure that this paper will be of some interest to a meeting of internalists, but I fail to see any sufficient reason why it should be read before a gynecological society.

Dr. Gillmore (closing the discussion).—In reply to the remarks of Dr. Kolischer, I know personally of three or four cases suffering from an uncomplicated catarrhal enteritis, who, by the advice of competent men, submitted to an ovariotomy. I think this is sufficient reason to justify one in calling the attention of the gynecologist to disorders of this kind, especially when many of the symptoms so closely simulate those diseases peculiar to women. No gynecologist is justified in mutilating a woman of the neurasthenic type—unless she suffers from a tangible pelvic disorder—until he has excluded the possibility of a catarrhal enteric complication.

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Rudolph W. Holmes, M.D.,
Editor of the Society.

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TRANSACTIONS OF THE
NEW YORK OBSTETRICAL SOCIETY.

Meeting of October 13, 1903.

The President, Dr. Egbert H. Grandin, *in the Chair.*

FOREIGN BODY IN THE UTERUS.

Dr. A. Brothers.—Although a large number of cases of foreign body in the uterus can be found in medical literature, and a new monograph on the subject has recently been published by Neugebauer, the condition is still one of peculiar interest because of its rarity. I have known of two cases of foreign body in the uterus. In one case two medical men of this city were curetting a uterus when the tip of the curette broke off. Nothing was done in the matter, and the lady still carries the foreign body. In the second case, while making an intra-uterine injection with a glass catheter the patient made a sudden movement and the catheter broke off, so that several fragments remained in the interior. The case was successfully operated upon, and reported to this society by Dr. H. J. Boldt.

My own experience deals with a young woman who entered the Post Graduate Hospital in the early part of August complaining of dysmenorrhea and sterility, which was attributed to a stenosis of the internal os. Under anesthesia the cervix was dilated, and the obstruction at the internal os fairly overcome. In accordance

with the usual practice the interior of the uterus was slightly cu-
retted, using special force at the region of the internal os, so as to
completely dig out the fibroid ring at this situation. Suddenly the
instrument broke and the steel loop of the curette remained in the
uterine cavity. All efforts to reach and extract it with forceps
failed. The blades of the instrument could not be separated suf-
ficiently, owing to the small size of the uterus, to seize the foreign
body. Indeed, all these attempts seemed to push the body further
in. Owing to the smallness of the vaginal lumen the operation
was difficult. The anterior lip of the cervix was seized in the
grasp of two Jacob's tenacula, the anterior vaginal wall longi-
tudinally incised, and the bladder pushed up to the fundus uteri
taking care not to invade the peritoneal cavity. The anterior wall
of the uterus was split with scissors between the Jacob's forceps,
placed successively at higher levels until a point was reached half
way between the internal os and the fundus. From this point the
steel loop could be felt at a little higher level. It was seized with
a pair of small artery forceps and readily extracted. The uterine
wound was carefully approximated by means of interrupted
chromicized gut sutures, and with the exception of a portion left
open, because of a packing necessary to control too much oozing,
the vaginal wound was also brought together. The lower part of
the cervix was left gaping up to the level of the internal os, so as
to thoroughly prevent any possible future trouble from the steno-
sis. The wound healed kindly and the patient made a good re-
covery.

The President then announced that owing to the illness of Dr.
R. A. Murray, there would be no paper read, but that the evening
would be devoted to the report of cases by the members and the
discussion of the same.

Dr. H. J. Boldt.—I have some history cards here which I think
are desirable for those who wish to have in addition to the history
a separate classification of the respective operations which they
have done, and also the classification of diseases of a certain kind,
which they have treated. The card history here is complete, and
on the back of the card there are diagrams, which may be filled
out. It has given me great satisfaction since I have adopted it.[1]

ADENO-CARCINOMA OF THE CECUM.

Dr. Joseph Brettauer.—In July, 1896, I operated upon a
woman who had a very large adeno-carcinoma of the cecum. I
removed part of the small intestine, the cecum and a part of the
ascending colon, eighteen inches in all, with a wedge of the mes-
entery, in which were numerous carcinomatous glands. I saw the
woman yesterday, and she is in perfect health.

SPINA-BIFIDA.

Dr. E. B. Cragin.—The cases that have interested me most
within the past few months have been those of spina-bifida. It

[1] Library Bureau Cards No. B.83,615 and B.83,615.A.

has been my fortune or misfortune to run across three cases of this character within the last year; two at the Sloan Maternity Hospital, and one in a neighboring town within the last week. All three were such that the only thing to do seemed to be to operate upon them. Of the two at the Sloan, one made an apparently complete recovery. The child came back in four months. The recovery of the spinal column seemed to be perfect, and the child vigorous, without any of the complications frequently seen. In the second case there was a much wider opening in the spinal column, and although I covered the gap as well as I could with the neighboring muscles of the back, the child went into a marasmic condition and died.

The third case occurred in Greenwich, Conn. The child was born with n immense spina-bifida in the lumbar region, which ruptured during birth with such a profuse hemorrhage that it was necessary for the family physician to pack the sac with iodoform gauze to control the bleeding. I removed the gauze, and found that although the sac was large, the connection with the spinal canal was small. I excised the sac, tied off the pedicle leading into the canal, and brought the muscles together as best I could, approximating the periosteum as far as possible. I have heard from the case within a day or two, and so far everything is doing well. This operation was performed about five hours after birth The two previous cases were operated upon during the first fortnight.

I mention these cases as interesting instances of early operation in spina-bifida, with very fair prospects of improvement. The first case has been going on for about six months, and the child has been well, and the last one has every evidence of improvement. At any rate, the change from the hideous looking mass is certainly a great joy to the parents, and it looks as though the health of the child was to be permanently benefited.

CARCINOMA OF THE CERVIX.

DR. DOUGAL BISSELL.—The patient, a maiden lady of forty years, had never been examined previous to the time I first saw her. My examination revealed a large growth filling the vagina and slightly protruding at the vulva. So far advanced was the disease that I questioned the advisability of attempting its removal. Under ether the growth was found to have its origin from the anterior lip of the cervix. I removed the entire mass with the thermo-cautery, and performed a complete hysterectomy two weeks after. The patient immediately improved in her general health, but on examination six months after there was noted a recurrence of the growth in the scar at the vault of the vagina. The thermo-cautery was again applied, followed by X-ray exposure. The ray has not cured the tumor, but seems to have checked its rapid development. I now propose to again burn away the recurrent mass and submit the field once more to the X-ray treatment. During the past six months the patient's general health

has improved wonderfully. The growth, according to the pathol-
ogist, was a carcinoma.

BLINDNESS FROM POULTICING THE EYES.

Dr. A. M. Jacobus.—I wish to report a case to show what was
still being done as recent as five years ago by a general prac-
titioner in obstetrics. I spent the summer up the State, and was
asked by a lady, also a visitor, to see a little child in the town said
to be blind, and as this lady offered to pay the expenses of the child
to the special hospital for treatment, if I thought she could be
helped, I willingly examined the little girl. She was born five
years ago, and for some reason or other the physician in attend-
ance ordered poultices to her eyes for seven days and nights, be-
ginning three days after her birth. By that time the right cornea
and eye had ulcerated and discharged its contents, and the left eye
nearly so. To-day the child has nothing but an empty capsule or
sclera in the right eye, and a very large staphyloma, with a nearly
complete opacity of the cornea and chronic keratitis and conjunc-
tivitis in the left eye. One can hardly find a clear spot on the
cornea, and the child can barely see any light and suffers also from
constant pain. I report this case, not because any member of this
society would be likely to treat a case similarly, but to impress
upon others what every student has heard his professor say, "never
to poultice the eyes," and yet a physician within this State, in re-
cent years, according to the reports of members of the family, has
poulticed a child's eyes until one of them ran out and the other
nearly so. Of course, I could not promise much for the child, but
she has been admitted into the New York Eye and Ear Infirmary,
and is now under the care of Dr. Peter A. Callan, who proposes
to remove the staphyloma and try to save what little sight she still
has, besides making her more presentable and relieving her of the
constant irritation and pain from which she now suffers. Without
treatment it will be but a short time when the child will be utterly
blind.

I think this case is worth recording, because it shows the neces-
sity for teachers and professors to continue to emphasize to their
students the fact that they should never apply poultices to the eye.

ECTOPIC GESTATION.

Dr. H. J. Boldt.—In this specimen of ectopic gestation the
ovum is intact, and the tube partially ruptured. I saw the woman
for the first time last Saturday, and she at that time had symp-
toms of what I considered to be tubal abortion. The question was
whether she was going to recover without operation—whether she
was going to have an organized clot formation—or whether surgi-
cal intervention would be necessary. The interesting feature in the
history was that at no time has the woman had any discharge by
vagina. The usual bloody discharge which we have at irregular
intervals was entirely absent in this instance. Menstruation had
ceased for about ten weeks, and about ten days or two weeks ago

she had an attack of characteristic abdominal pain, followed by another attack of pain, which continued for an hour a day or two later, and on Saturday morning she had a third attack there after I saw her in consultation. I immediately made the diagnosis of ectopic gestation, and the only question was whether it was a tubal abortion or partial tubal rupture. In the absence of urgent symptoms, I kept her under strict observation in the hospital, on the "expectant treatment," with the head of the bed elevated, to permit the blood to accumulate in the pelvis and coagulate, but after waiting three days with a negative result in this respect, I did not deem it wise to wait longer. I opened the abdomen this morning and removed this product of conception, unruptured in a partly ruptured tube.

RENAL CALCULUS, NEPHROTOMY.

Another specimen is a small one, but has some features of interest. The woman maintained that she had been in ill-health for a period of twenty years, complaining of pain in the lower abdomen, which at times would be relieved. During the last three weeks the pains did not cease at all, but increased in intensity, and were of such character that she was practically bedridden. Upon examination the abdomen was found to be much distended by a tumor which had its origin over the left loin, and which was diagnosed by me to be a pyonephrotic kidney, with obstruction of the ureter, because of the urine being perfectly clear and normal, and an examination of the bladder not showing that urine came through that ureter. On opening the kidney about 500 to 600 c.c. of pus escaped, and this stone was found impacted in the upper part of the ureter, causing complete obstruction. Because of the seemingly fair condition of renal structures the kidney was not removed, but drained.

This is a

DOUBLE PYOSALPINX,

with one ovary connected with the one tube; the other ovary was attached to the cornu of the uterus where the tube had been resected, because its structure was in nearly normal condition. The one removed was, as may be seen, useless. By such procedure the future of the patient was made more comfortable.

Dr. J. Lee Morrill.—I reported a case similar to that reported by Dr. Boldt. A patient of mine had been pregnant about two months and had never had either hemorrhage or pains. She went out one day for a walk, and while walking was suddenly taken with violent pains and was subsequently carried home. I was sent for and found her abdomen filled with blood. She was operated upon and found in the same condition as Dr. Boldt's patient. The tube was ruptured, the sac intact, and the abdomen filled with clots. She had had no hemorrhage prior to that time.

Dr. William E. Ford, of Utica, N. Y.—I had the converse of this proposition presented to me just recently in a case on

which I operated for an ectopic pregnancy, with a good history of ectopic gestation. The case was that of a woman who had been a trained nurse before her marriage, had two children, and had missed one period. In straining at stool in the water closet she had a fainting spell, in which condition she was found by her family, but recovered in a few hours. Two or three days afterward she had another fit of the same sort, and was brought to the hospital, when I found that she had a small tumor in the region of the right ovary, close up to the uterus. I opened the abdomen and found that she had a solid tumor over the region of the appendix, extending down to the ovary, to which the intestines were adherent, and I had a good deal of difficulty in separating it, finally taking out a cheesy mass, which I thought was a tuberculous appendix or tube. The large mass was attached to the ovary and there was nothing of importance in the condition below, except that there was about two drachms of pus in the center of this mass, which was a little bigger than a hen's egg. She had evidently broken up some adhesions. There was a slight hemorrhage from the vagina before operation. I have operated on one other case in which I supposed I would find an ectopic pregnancy, which proved to be an appendicitis.

DR. MATTHEW D. MANN, of Buffalo.—I think the symptoms of ectopic gestation are absolutely unreliable. I have seen cases in which there were absolutely no symptoms, nothing to lead one to think of extrauterine pregnancy, and yet on opening the abdomen this condition was found. I have seen a good many cases where the symptoms were classical. I saw one only last week, where every symptom was present, and where one could not help make the diagnosis. I think these cases are common, but it seems to me that there are a good many where the symptoms are entirely unreliable. I have operated on two cases where no rupture had occurred. In one case, a woman who was under my care was wearing a pessary, and she came to me to have her pessary cleaned. One day I noticed a small tumor down behind the uterus. I made an examination, and I found evidences of pregnancy; and I made up my mind that it was a tubal pregnancy. I sent her to the hospital, and the next day removed the tube through the vagina and found an unruptured tube with the ovum in it. I think the number of cases operated upon before rupture is very small.

DR. H. C. COE.—This subject has been so frequently discussed that I shall refer to only one point. In a certain class of cases the patient may miss a period without showing any other evidences of ectopic, except the presence of a mass. This has been my experience in two instances, the rupture occurring just at the time when the next period was expected. I have always believed that these cases are not so rare. The pre-menstrual congestion precipitates the rupture, and unless we are on our guard we are very apt to mistake the pain for severe dysmenorrhea. The patient skips a period and supposes that she has taken cold; this was the history

in both of the cases to which I refer. Unfortunately, in both the operation was undertaken too late.

DR. E. B. CRAGIN.—I would simply say that a member of this Society, Dr. Howard C. Taylor, has had a similar experience. He incised the tube, took out the fetus, sewed up the wound, and left the tube.

DR. HOWARD C. TAYLOR.—In this case the patient had a small ovarian cyst on one side, if I remember correctly on the right side and on the left side an ectopic pregnancy, with the tube unruptured, but bleeding from the open fimbriated end. It seemed to me that as the ovary had to be removed from the right side, it was unwise to take out even the tube on the left side. I incised the tube, took out the blood clot which was there, and left the tube. The diagnosis of ectopic pregnancy was confirmed in the pathologist's report, though there was apparently no question about the diagnosis, even before the pathological examination.

DR. H. C. COE.—I would raise the question if it is good surgery to leave such a tube in the abdominal cavity, without at least an attempt to excise the diseased portion?

DR. A. P. DUDLEY.—The symptoms and signs of extrauterine pregnancy are about as certain as the steel stocks at the present time. So I think Dr. Coe's criticism is to the point; when you are in difficulty about such a case, the only thing to do is to operate. I think in this connection that I may be allowed to say something of what I saw this summer abroad. I saw Ohlshausen operate for an extrauterine pregnancy, and he opened the abdomen, took out the clot, removed the fetus, stopped the hemorrhage from the tube, but did not take out either the tube or the ovary. It seems to me that this is an advance in these cases.

DOUBLE HYDRO-SALPINX, WITH A MULTILOCULAR CYST SUPPOSED TO
BE PAR-OVARIAN.

DR. LEROY BROUN.—The patient, Mrs. E. B., was admitted to the hospital January 7, 1903. Mental diagnosis, Paranoia. The pelvis was filled with an irregular tumor. Operation was performed July 2. The abdomen was opened and there was found in the pelvis a multilocular cystic tumor closely adherent to which was the uterus. This tumor so tightly filled the pelvis that the uterus with both diseased tubes and ovaries was removed, a supravaginal hysterectomy being done. After removing the uterus with the diseased adnexa it was seen that the tumor did not receive its origin from either of the ovaries. The tumor was then shelled out of the pelvis and found to have no pedicle. The free edges of the broad ligaments were stitched together and the bladder was brought snugly over the cervical stump. An opening was made back of the cervix and gauze packing placed in the pelvis to stop the oozing. This gauze was removed in the ordinary way. The abdomen was closed and the patient placed in bed in good condition. She made an uninterrupted recovery.

The pathological report of this tumor states that it is a fibro-cys-

toma, probably par-ovarian in origin. The unusual appearance, together with the absence of pedicle, render a further pathological examination of importance.

SUPRA-VAGINAL HYSTERECTOMY, WITH FIBRO-MYOMA ASSOCIATED WITH CYST OF BOTH OVARIES, TOGETHER WITH HYDRO-SALPINX OF BOTH TUBES.

DR. LeRoy Broun.—Mrs. F. S. was admitted to the hospital February 7, 1903. She was a German, forty-five years old, and was married at the age of twenty-one. Her husband died eight years ago. She married the second time in 1899. She never gave birth to children, but has had two miscarriages. Since her marriage her menstruation has been irregular, lasting three or four days, and normal in quantity. At times she complains of pain in her abdomen and dizzy headaches. She has a small umbilical hernia, her uterus is anteverted, small and hard. About one year prior to admission she developed delusions of persecution, imagining that people were talking about her and trying to rob and kill her. On April 16, after being prepared for the usual operation, abdominal section was performed, the incision being made through the left rectus muscle. Both tubes were found to be diseased, enlarged and tortuous, and both ovaries cystic. The uterus was small with one fibroid the size of a hen's egg attached to the fundus by a pedicle, and another on the anterior wall. The whole mass was bound down to the intestines and to the bladder by adhesions. The adhesions were broken up, both tubes and ovaries were removed and the uterus was amputated above the internal os. The cut surfaces of the stump were brought together by a continuous suture of catgut and the layers of the peritoneum were approximated throughout, all raw surfaces being closed. Prior to approximating the peritoneal surfaces, an opening was made back of the cervix into the vagina and a gauze drain was inserted. The abdominal cavity was then flushed out with a solution of normal saline. The incision was extended to the umbilicus and the hernial sac removed, after which the wound was closed. This patient made an uninterrupted recovery.

MULTILOCULAR OVARIAN CYST.

DR. LeRoy Broun.—A. H. was admitted to the hospital November 3, 1897, suffering from chronic melancholia. She was 30 years old and was rapidly passing into dementia, but in June, 1899, she began to show evidences of a collection of fluid in the abdominal cavity which increased rapidly. The fluid was drawn off by tapping at various times, up to January, 1903. These intervals usually were about six months apart. February 12, 1903, an abdominal section was performed and a large multilocular cyst removed. The patient made an uninterrupted recovery.

The specimen, was shown since, in its removal, there were no adhesions between the cyst wall and the parietal peritoneum, as would be expected from the number of tappings.

SUPRA-VAGINAL HYSTERECTOMY FOR A LARGE FIBROID TUMOR.

Dr. LeRoy Broun.—Miss K. T. was admitted to the hospital September 5, 1903. Her mental trouble began in May, 1903. The latter part of September there was found on examination a large fibroid tumor. It was removed by the supra-vaginal route, both tubes and ovaries being left in.

SUPRA-VAGINAL HYSTERECTOMY FOR FIBROIDS; OVARIES LEFT IN.

Dr. LeRoy Broun.—Mrs. H. W. was admitted to the hospital in 1898. On September 1, 1903, a supra-vaginal hysterectomy was performed, the ovaries being left in. I show these specimens of fibroids in order to accentuate the closing of the cervix entirely after supra-vaginal hysterectomy. This is done by a number, yet a good many still drain the subperitoneal space. Within the last year, at the Manhattan State Hospital West, I have done twenty of such hysterectomies, and also others elsewhere. In none of those cases has there been the slightest complication in recovery. The cervix is always closed by one or two layers of running sutures of catgut. If, when it is cut across at the time of the removal of the tumor, the cervical mucus protrudes from the canal, this is wiped off. I do not cauterize or attempt to make antiseptic the cervical canal in any way, since the result of all bacteriological examinations have shown the uterine canal to be uniformly sterile, unless in a uterus previously septic. The cervix being closed, the bladder wall is brought over and stitched to the posterior portion of the cervix. No posterior flap is made. The ovarian stump is also covered over by peritoneum and the free edges of the broad ligament are united, leaving no surfaces exposed.

Some two years ago, in reading before the Society a study of hysterectomies in general, I stated that under the methods that we were using at that time of draining the subperitoneal space through the cervical stump, the best results were obtained by taking out the cervix entirely, since such drainage through the cervical canal had led to infection and trouble.

I also stated that after two months before reading this paper we had been closing the cervix, and the results had been most satisfactory. This method of closing the cervix had been constantly adopted since, and without exception has given a uniform uninterrupted, surgical recovery in each instance. In speaking of this method of supra-vaginal hysterectomy I refer to those cases, nonseptic in origin, in instances where no necrotic tissue is left and where there is no doubt as to the sterility of the field. I think it is wiser to remove the cervix and use free drainage of all raw surfaces covering over such by a peritoneal flap having the drainage underlying.

DISCUSSION UPON THE CASES REPORTED BY DR. LEROY BROUN, PARTICULARLY UPON THE POINT AS TO THE NECESSITY OF DRAINING THE CERVIX AFTER OPERATION.

Dr. Matthew D. Mann, of Buffalo.—My custom is this: when I take out a fibroid I leave the cervix and then close the

peritoneum over the stump, as I believe everybody does. As the abdominal cavity is perfectly clean, if my hands, ligatures, etc., have been clean, I can see no necessity for any drainage. I have seen trouble from blood collecting under the peritoneal flaps. I had a case where the temperature went up somewhat high. I dilated the cervical canal, and perhaps a teaspoonful of infected blood came away, followed by immediate recovery. Since then, however, I have put a small piece of gauze in the cervical canal after dilating it, and then sewed the peritoneum tight, leaving the cervix open to drain the subperitoneal space. I never drain the abdominal cavity, never put a piece of gauze through the cul-de-sac in clean cases, and never drain from above at all.

Dr. B. McEmmet.—My custom has been in general, the same as Dr. Mann has stated. I always unite the flaps and believe that anything remaining in the peritoneum will escape by the little interstices which remain after stitching. I never leave any opening or insert any drainage unless I have been working from below. If I have hemorrhage from detaching tumors or adhesions I drain from above. These are the only instances where I use gauze. I have never felt that the peritoneum was entitled to have thrust upon it the care of anything the least septic, but when clean and apart from the above conditions I have always closed up everything.

Dr. Clement Cleveland.—I always close the stump of the cervix with two layers of catgut and then very carefully stitch the bladder over the cervix. I always disinfect the canal with carbolic acid, or, sometimes the cautery. Formerly I was in the habit of placing a small piece of gauze in the canal and leaving it in forty-eight hours. In two cases sepsis followed. I had to dilate the cervix in order to let out the pus, and I then made up my mind that the use of gauze is quite a dangerous proceeding than otherwise, and for quite a number of years I have ceased to use it. Since then I have not had any trouble.

Dr. G. G. Ward, Jr.—It is my custom to close the cervix with a couple of catgut sutures and then sew the bladder over the stump of the cervix, and I try to do away with the dead space by catching up the cervical tissue with the stitch, but do not drain.

Dr. Howard C. Taylor.—Our custom at the Roosevelt Hospital is a little different in the way we treat the cervical canal. With a knife we cut out a small wedge-shaped piece from the top of the cervical stump, taking away a part of the cervical canal. This seems to me to be a better way than burning it out or cauterizing it with carbolic acid. We close this wound over with interrupted catgut sutures and then sew the bladder fold of peritoneum over the stump, catching the cervix with each suture so as not to leave any dead space. I do not think we have ever drained through the cervical canal.

Dr. H. J. Boldt.—I do not drain at all, and have not drained for a good many years, except under unusual circumstances. I prefer to leave as much of the uterine structure as possible. Whenever I can save the tubes or ovaries, I always save them.

Dr. E. B. Cragin.—The method described by Dr. Taylor is practically that which I have followed for the last five or six years, excising a small wedge-shaped piece from the upper part of the cervix and doing absolutely nothing to the mucous membrane of the cervix, but stitching the flaps of the cervix and then the peritoneal flaps tightly down upon it, obliterating all dead space. I use no drain whatsoever.

Dr. Willis E. Ford, of Utica, N. Y.—If I have a fat stump I scoop it out pretty thoroughly, and I always put in a piece of tape half as big as a lead pencil and about two inches long, so that I can catch it with a pair of uterine forceps. I leave that in for two or three days.

Dr. J. R. Goffe.—I always leave the cervix unless there are some special indications for its removal. As Dr. Ford has said, if I have a large spongy cervix, I take out a wedge-shaped piece from the top of it; otherwise I leave it entirely alone. If I take out a wedge-shaped piece, I usually dilate and cauterize the canal with pure carbolic acid. I do not use any suture in the cervical tissue, but turn the flaps in with a running Lembert suture, so as to fit very snugly over the stump. I make a posterior flap, as well as an anterior flap, and stitch them together.

Dr. B. H. Wells.—I find the less I manipulate the stump the better the cases get along. I close all gaps in peritoneal surfaces; sew the vesical flap to the posterior edge of the cervical stump, and do not drain. In a large series of cases I have had no appreciable trouble from infection of the stump.

Dr. C. A. Von Ramdohr.—I sew the anterior and posterior flaps together and do not drain unless I am afraid I might have sepsis in a spongy cervix from inadvertently left dead spaces.

Dr. Dougal Bissell.—I drain posteriorly with gauze when pus is encountered; also, when large bleeding surfaces remain after the tumor has been removed. I sew the edges of the stump together, covering as much surface as possible with peritoneum.

Dr. H. C. Coe.—I remove a wedge-shaped piece in the manner described and close the stump with two layers of catgut sutures, previously cauterizing the cervix, but do not usually drain.

Dr. J. N. West.—I tie off the left ovarian artery with a long catgut ligature, leaving one end of this long, using it as a suture with which I whip together the layers of the broad ligament down to the cervix; then I catch up the anterior flap of peritoneum, the anterior portion of the stump of the cervix, the posterior portion of the stump, and finally, the posterior peritoneal flap, thus uniting the cervix and peritoneum in a continuous suture across the stump. Then, with the same suture, I whip together the right broad ligament. I never make drainage in supra-vaginal hysterectomy unless some complication requires it.

Dr. Joseph Brettauer.—I invariably drain. I excise as much of the cervical canal as I can easily do. I put a piece of gauze in the cervical canal on account of the oozing. It takes fifteen to twenty minutes to control it by sutures, and it takes only half a

minute to control it by gauze. Therefore, I use gauze really more to stop the hemorrhage than to drain.

Dr. Andrew F. Currier.—I do not see how you are going to tell in any case, even if you have no pus that you are not going to have infection. I do not think you can tell in the majority of cases either that you will not have hemorrhage. If you get hemorrhage under the peritoneum and do not remove it as Dr. Mann did you will be almost certain to get suppuration, and so it seems to me it is always better to have a method of draining these complications which may come, no matter how careful we may be in the operation. And these complications do occur in the practice of as careful pelvic surgeons as there are here. It seems to me the best way to avoid this is by the use of drainage under the peritoneum. I seldom do the supra-vaginal operation for myomata, preferring to take out the whole cervix, if possible.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, April 17, 1903.

President, G. Wyeth Cook, M.D., *in the Chair.*

Dr. J. T. Johnson presented several pathological specimens. The first was a

RUPTURED TUBAL PREGNANCY.

Mrs. H., married five years, has one child two years of age and is about twenty-five years old herself. Her symptoms came suddenly six weeks ago. She was treated for an impending abortion which the attending physician supposed had occurred. The uterus was curetted. Later on pelvic infection was diagnosed and she was brought to his sanitarium for an operation for "pus in the pelvis." She had had chills and sweats, her temperature ranging from 98° in the morning to 104° in the evening. At the operation he made vaginal puncture with an aspirator needle and only got a drop of black thick blood. Thinking for the first time that it might be a ruptured tubal pregnancy he changed her position and opened the abdomen. Many adhesions required separation before reaching the tumor which consisted of a ruptured right tube and about three pints of dark offensive blood clots. After ligation and removal of tube and clots he made an opening through Douglas' pouch for vaginal drainage. After filling the abdominal cavity with normal salt solution, it was closed in the usual way. It is now three weeks since the operation and the patient is doing well. Her life was saved by vaginal drainage. So much offensive material came away as to require the services of a special nurse to keep the patient clean and her room endurable.

OVARIAN CYSTS.

His second case was also one of mistaken diagnosis. A distinguished surgeon in a neighboring city had pronounced it appendicitis. She was sent to his sanitarium by Dr. Bromwell for operation, with the statement that he did not believe her symptoms were caused by appendicitis. Dr. Johnson made an exploratory incision over McBurney's point, drew up the vermiform appendix, which so far as he could see and feel was perfectly healthy. He removed it, however, as he had promised to take it out whether diseased or not. He found an ovarian cyst about the size of a pullet's egg and a somewhat kinked tube on the right side. Convalescence was rapid.

His third case was also a case of erroneous diagnosis. A lady of forty-five had been treated for indigestion several times and during past month for appendicitis and peritonitis. Abdomen very large and very fat. Appendix was free from disease but he removed an ovarian cyst about the size of a cocoanut. The tumor had been discovered by both the attending physician and himself, but it was so tense and immovable that they both thought it to be a uterine fibroid. The cyst wall was in such a state of inflammation as to have caused the symptoms mistaken for appendicitis. She also made a good recovery, notwithstanding a mural abscess in the fat thick abdominal wall.

Dr. Samuel S. Adams read a paper on

EPIDEMIC CEREBRO-SPINAL MENINGITIS IN CHILDREN.[1]

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

(Continued from p. 736)

Dr. Edwin Ricketts, of Cincinnati, O., read a paper on

THE CHOICE OF METHODS FOR CLOSING THE ABDOMINAL INCISION.[2]

Dr. Herman E. Hayd, of Buffalo, N. Y., read a paper entitled

SUPRAVAGINAL AMPUTATION FOR FIBROID TUMORS, WITH REPORT OF CASES.[2]

Dr. Lewis S. McMurtry, of Louisville, Ky., said that after a supravaginal amputation, with drop pedicle postperitoneally, there was a phlegmon around the cervix in a considerable number of cases, and after a little while, when the patient's convalescence seemed ideal for a few days, there was a rise in temperature. This

[1] See original article, page 790.
[2] Will appear in a succeeding number of the JOURNAL.

condition latterly had been largely eliminated by paying more attention to details than was recommended in the early operation.

Dr. James F. Baldwin, of Columbus, O., said one objection to hysterectomy was the danger of shortening the vagina. This applied more particularly to panhysterectomy than to supravaginal hysterectomy. To obviate this, he made good strong flaps on each side of the cervix, so that the ligaments could drop in between the flaps, if the woman was a multipara.

He had had two cases of cancer of the cervix following this operation.

Ochsner, in his recent book, called attention in several places to the danger of gangrene of the stump from the use of ligatures. The speaker had never had this happen, and he thought it had been greatly exaggerated by Ochsner.

Dr. Hayd, in closing the discussion, said he could not agree with those gentlemen who had endeavored to persuade him that the cervix required no attention. It was an inviting source of infection. He always washed out the vagina previous to this operation.

In regard to cancer attacking these cervices that had been left, in the hands of good operators on the one side with equally good ones on the other, there was a mortality of 4 per cent. attending panhysterectomy as contrasted or compared with the simple operation of supravaginal hysterectomy.

PRELIMINARY OBSERVATIONS ON OVARIAN GRAFTING.[1]

Dr. Robert T. Morris, of New York, made some remarks on this subject.

Dr. Gilliam inquired what kind of suture Dr. Morris used in ovarian grafting.

Dr. Morris replied that he used No. 1 catgut.

Dr. John B. Murphy would like to know how Dr. Morris transplanted ovaries. In January or February of this year the speaker removed an ovary in connection with a fibroid tumor and transplanted it into a monkey. He split the ovary, transplanted half of it subperitoneally, and the remaining half intraperitoneally. He removed it thirty-two days afterward and sent it to a pathologist, without any statement as to what was done, and asked him for an opinion as to the condition of the ovary. The pathologist reported that the ovary was absolutely normal in every respect.

Dr. Herman E. Hayd said that if the processes of ovulation and menstruation would continue whether an ovary be transplanted intraperitoneally or extraperitoneally, there would be infinitely less danger if a piece of ovary was transplanted into the abdominal wall. In other words, one need not worry about his technique if menstruation would go on just the same.

Dr. Murphy said that transplantation of an ovary intraperitoneally was fatal to the ovary. He would like to ask Dr. Morris

[1] See paper, page 784.

what he did, as it was well-known that the peritoneum would eat rapidly whatever was brought in contact with it.

Dr. Albert Goldspohn had not utilized ovarian tissue that had been completely severed from its original connection, fearing that it might seriously interfere with function. That ovarian tissue would do good otherwise, so far as establishing secretory function was concerned, was proven by experiments made by a German whose name he could not recall.

He mentioned two instances in his own experience. In one case there was only the slight vestige of an ovary. It looked like a mass of denuded raw connective tissue, although there was ovarian tissue in it. The remnants were barely connected with a little bit of connective tissue. In another instance there was more connective tissue. In these two cases he swung the ovary around to the nearest accessible healthy peritoneal surface, and stitched it with fine catgut. Both of the women menstruated, one for two months after abdominal section, and the other had menstruated regularly since. She was enjoying very good health. So far as the sexual appetite was concerned, there seemed to be no difference.

Dr. James F. Baldwin said that if one was transplanting an ovary for the purpose of preventing the ill-effects of the menopause, and not with the idea of future pregnancy, why might he not, in a patient who had been operated on several months before, make an incision down to the peritoneum, make a little pocket in the peritoneum, and drop in the healthy ovary from patient No. 2, and then close the incision? Frequently an ovary might be embedded in dense adhesions in the pelvis, yet the woman might continue to menstruate but not conceive.

Dr. Morris, in closing the discussion, said that an ovary that had been grafted might be found perfectly normal at the end of thirty-one, ninety or a hundred days, or even at the end of six months or a year. On the other hand, an ovary that had been grafted from one patient into another would not be found to be normal at the end of that period. In a series of rabbits operated on over a year ago, he found ovarian tissue in every one at the end of twelve months. The ovaries were still perfectly normal when the rabbits were grafted with pieces of their own ovaries. The corpus luteum was an organ which had a special function. He thought it controlled menstruation, and so long as a corpus luteum was formed in a grafted ovary the patient would menstruate. When a corpus luteum was not developed, then the patient ceased to menstruate. It was necessary to get a lymph circulation in order to keep the ovary alive. Were it not for this the ovary would become absorbed, because the peritoneum would digest beefsteak. The ovary must receive a lymph supply. In a few days he found capillaries and a complete ovarian circulation. He had seen fairly good-sized arteries surrounding a grafted ovary, but not actually in it. He had not noticed infection in any of the rabbits experimented on.

As to bringing back menstruation after it had ceased, he mentioned the case of a nurse who had had her ovaries removed two years previously. She had ceased menstruating. He brought back menstruation in her case, so that she continued to menstruate regularly for several months. One young woman with an infantile uterus, after receiving an ovarian graft, menstruated for a year, The graft then became absorbed, since which time she has ceased menstruating.

Dr. Baldwin said, in operating on a woman who had not been menstruating for two or three years, was it necessary that one should implant any part of an ovary into the peritoneal cavity? Why could it not be slipped into a pocket made underneath the peritoneum?

Dr. Morris said that one could slip an ovary under the skin and it would carry on its function. If a piece of thryroid gland was put anywhere, so long as it was in the tissues of the body, it would carry on function. But it would undergo absorption more rapidly if it was implanted in tissue distinctly foreign to its normal surroundings. But if it was surrounded by an environment that was practically normal, it retained its integrity for a much longer period of time.

Dr. Hugo M. Pantzer, of Indianapolis, Ind., read a paper on

PELVIC MUSCULATURE IN DISEASE.

Dr. Charles L. Bonifield, of Cincinnati, O., followed with a paper on

THE USE OF VERATRUM VIRIDE IN SURGICAL AND OBSTETRICAL PRACTICE.

Dr. F. F. Simpson, of Pittsburg, Pa., read a paper entitled

COINCIDENTAL TUBAL AND EXTRAUTERINE PREGNANCY, WITH REPORT OF A CASE.

Dr. Willis G. MacDonald, of Albany, N. Y., read a paper entitled

EMERGENCY ABDOMINAL SURGERY AT THE PATIENT'S HOME—A DEMONSTRATION.

OFFICERS.

The following officers were elected for the ensuing year: *President*, Dr. Walter B. Dorsett, St. Louis, Mo.; *First Vice-President*, Dr. A. B. Miller, Syracuse, N. Y.; *Second Vice-President*, Dr. W. D. Haggard, Nashville, Tenn.; *Secretary*, Dr. William Warren Potter, Buffalo, N. Y., reëlected; *Treasurer*, Dr. X. O. Werder, Pittsburg, Pa., reëlected.

The time and place for holding the next annual meeting of the Association were left to the decision of the Executive Council.

¹The above papers will appear in a succeeding number of the Journal.

TRANSACTIONS OF THE
OBSTETRICAL SOCIETY OF LONDON.

Meeting of November 4, 1903.

The President, EDWARD MALINS, M.D., *in the Chair.*

DR. GEORGE J. MAGUIRE read a paper on

ACUTE CONTAGIOUS PEMPHIGUS IN THE NEWLY-BORN.

Authorities were quoted to show that infantile pemphigus other than syphilitic, though known to occur, was rare, especially in England.

After stating the constitution of the Charity in the practice of which the epidemic dealt with occurred, and after giving data as to the carrying on of the work up to the time of the outbreak of this epidemic, the period over which it extended was recorded, the number of deliveries during that period being twenty, the number of infants affected with pemphigus being eighteen, and the number of deaths eight.

The clinical symptoms in the first case seen were described, followed by detailed notes of the history and symptoms in each case, with the result; and an abstract in tabular form was appended.

It was concluded that the cases arose from a common contagion of septic origin (its source, however, unknown) conveyed from case to case by a certain midwife, the probable method of conveyance being given. The contagiousness of the affection was proved, and the number of cases infected from each infant was given.

After quoting a paper by Bulloch in the *British Journal of Dermatology* for 1896, which contains an account of the micro-organisms found in previous epidemics of pemphigus neonatorum, there was given the result of the bacteriological examination of serum from two of the cases, the pathogenic germ isolated being the *Staphylococcus pyogenes aureus.*

The incubation period was then inquired into, and an endeavor made to fix the time required—(*a*) for the development of a bulla; (*b*) for the earliest signs of the skin lesion. This last was then described in detail, the method of formation and spread of the bullæ being given, with the appearance presented after their rupture, and their course—(*a*) in the recovering cases, (*b*) in the fatal cases; followed by a short account of the microscopic appearances of sections of an old and a new bulla.

The additional symptoms in the fatal cases were detailed, the condition of the umbilicus and abdomen being particularly noticed. It was concluded that these symptoms were those of an acute

toxemia, the infection having gained entrance through the un-healed umbilicus.

Notes of the autopsies on Cases 10 and 11 were given, after which the therapeutic measures were discussed, and a suggested line of treatment in future cases was laid down.

The conclusions arrived at were:

1. This epidemic was one of the comparatively rare disease pemphigus acutus neonatorum.

2. It was due to infection by a pathogenic micro-organism, the *S. pyogenes aureus*, conveyed from case to case by a certain midwife.

3. That although it appeared chiefly in the newly born, and was fatal to these only, it also attacked older children and adults.

4. It was characterized by a bullous eruption on the skin, va-riable in distribution and extent, the specific micro-organism being found in the contents of the vesicles.

5. In many of the cases no symptoms other than this eruption were manifested, but a certain number of cases showed grave symptoms of a general infection, and invariably ended fatally.

6. The point at which the systemic invasion began in these fatal cases was the unhealed umbilical scar.

7. Treatment to all appearances had little or on effect upon the course and duration of the disease, whatever the result.

DR. CULLINGWORTH said that one President of the Society after another had expressed his regret that so few papers were pre-sented dealing with the diseases of the newly-born. He therefore thought that Dr. Maguire's paper should be specially welcome as helping to vindicate the Society's claim to embrace within its scope the abnormalities and diseases of children. Apart from that, however, the paper was in itself an admirable one, and showed a capacity, not only for careful and accurate observation, but for making clear and painstaking records of such observa-tions.

The table seemed to supply information on all the essential points, and to be exactly what such a table should be.

Dr. Maguire had certainly added to his (the speaker's) knowl-edge and probably to the knowledge of most of those who were present.

It was interesting to note that in a considerable number of the cases the disease had been communicated to elder children and to adults. This fact threw some light upon a case of acute pemphigus, which he had himself seen in an adult, and which at the time puzzled him extremely. With regard to the special micro-organ-ism, that had been discovered in connection with two of the cases in this remarkable epidemic, he could scarcely bring himself to believe that so widely diffused a microbe as the staphylococcus pyogenes aureus ought to be regarded as the specific source of this particular infection. He was not a bacteriologist, and therefore could not speak with authority on this point, but he felt disposed to suggest that on further investigation, some infective

micro-organism of a more distinctive character would probably be found associated with this disorder.

DR. VINCENT DICKINSON said that a similar epidemic occurred at the Foundling Hospital at Parma in 1901-2, and was described by Dr. Pasini at great length in the *Giornale Italiano delle malattie venere e delle pelle* of this current year. The clinical histories of fourteen cases were given, most of which ended fatally; examination of the blood showed a marked leucocytosis, especially in mononuclear cells, pointing either to altered chemiotaxis or to efforts of defence on the part of the subject against pathogenic agents. The cases pointed indubitably to the conclusion that a specific organism was the exciting cause and that there was no relation between this disease and syphilis. The speaker thought that the primary mode of infection was not through the umbilical scar, which only became infected later through the discharge from the bullæ, general systemic infection with a fatal result then occurring, as shown by Dr. Maguire's cases.

The fact that adults became infected also pointed to the same conclusion.

DR. J. M. H. MACLEOD, after thanking Dr. Routh for giving him the opportunity of being present to hear Dr. Maguire's lucid and scientific report, referred to a few points which had been raised in the paper.

He remarked on the increasing rarity of this affection at the present time, compared with its prevalence a few years ago, and believed this to be due to the better antiseptic precautions taken in lying-in institutions and elsewhere. He agreed with the speaker that the disease was due to infection by a pathogenic micro-organism, but disputed his conclusion that the specific microbe was the staphylococcus pyogenes aureus, believing it to be a streptococcic infection due to the streptococcus pyogenes or a variant of it. He pointed out that unless special methods were employed in taking cultivations from the skin, and especially from the contents of vesicles or bullæ, culture of staphylococci would invariably be obtained. He described a method devised by Sabouraud in Paris, in which the contents of the bullæ were aspirated into a sterile pipette containing ascitic fluid after sterilizing the skin, and the pipette incubated for 48 hours at 37 degrees centigrade.

By this means Dr. MacLeod had obtained pure culture of streptococci in a fatal case of pemphigus neonatorum.

He referred to the relation of this disease to impetigo contagiosa, and reminded the members that the initial lesion of the latter disease was a vesicle, and that the infective agent was now generally believed to be the streptococcus pyogenes and not the staphylococcus, as was once thought. He noted the occasional occurence of impetigo contagiosa in the same family as pemphigus neonatorum. He referred also to the close relationship of the disease to the acute pemphigus of adults.

With reference to Dr. Maguire's notes on the umbilicus as the seat of infection, the speaker believed that in a large number of

of cases the inoculation did take place there, but that it might occur on any abrasion of the skin, and mentioned a case, in which the mucosa of the lip was the site of infection.

With reference to differential diagnosis, he believed that there was no great difficulty in distinguishing this affection from the "so-called congenital syphilitic pemphigus," for various reasons, which he detailed, but he considered that it might more readily be confused with the rarer bullous affection known as "epidermolysis bullosa hereditaria," the pathology of which was absolutely different, in that it was not due to a microbe, but was essentially a condition of excessive vulnerability of the skin, in which even slight traumatism resulted in the formation of flaccid bullæ, and was probably caused by an instability of the vaso-motor system of the skin, analogous to that which is present in factitious urticaria.

DR. PETER HORROCKS thought there could be no doubt that pemphigus, as well as many other skin lesions, and illnesses, were commoner in the newly-born in former times than at present, owing to the want of surgical asepsis on the part of the attendants.

He considered the paper a scientific contribution to the elucidation of the cause of a rare condition, but he did not think the "staphylococcus" was the culprit, neither did he think with Dr. MacLeod that it was the streptococcus, because both these microbes were so prevalent that it was exceedingly difficult to get rid of them from one's hands. After as thorough a sterilization as possible, the staphylococcus albus could be found under the nails.

Hence he thought pemphigus neonatorum would be common, instead of rare, if either of these microbes was the cause of it. Probably it was due to some other microbe, or else if due to one or both of the above mentioned germs, there must be another factor necessary, which other factor was rarely present. He asked if any of the mothers were ill at all and if they nursed the infants.

DR. MAGUIRE, in reply, said that the disease was one confined to the skin in the majority of cases, and was without symptoms of systemic invasion; where this took place, the umbilical scar was always previously involved, and the cases ended fatally. It seemed fair, therefore, to conclude that this was the channel by which a simple skin disease became a grave general disorder.

Replying to Dr. Horrocks, he said that all the mothers were healthy, with one exception; nor had this woman any grave disease. All the infants were breast-fed.

DR. W. H. B. BROOK (Lincoln) showed an

OVARIAN CYST

which had made its way between both broad ligaments, separating the peritoneum from the uterus, the cecum, and the sigmoid flexure of the colon. The history of the case was as follows:

E. B., 56, unmarried, was admitted into the Lincoln County Hospital on April 6, 1903, for an abdominal tumor, which she

had noticed since the previous December. She presented all the signs of an ovarian cystoma. The uterus was freely movable and appeared normal.

On April 11th the abdomen was opened, and the tumor removed; it proved to be an ovarian cystoma, one large cyst containing twenty-three pints of thick ovarian fluid with two small loculi.

The base of the cyst, which appeared to have originated in the left ovary, extended between the layers of the broad ligaments from one side of the pelvis to the other, passing behind and above the uterus, which was buried in the cyst. The peritoneum was stripped off the sigmoid and the cecum, so that the cyst wall was in direct relation with these two large layers of vessels spreading over its surface from the meso-sigmoid and meso-cecum. The vermiform appendix lay on the upper part of the cyst.

As it was impossible to separate the base of the cyst, its wall was cut through, and the remaining portion sutured to the abdominal wound and drained. The fundus of the uterus and a subperitoneal fibriod projected into the cyst. This fibroid was cut away, and caused no trouble.

The patient made an uneventful recovery.

A section of the cyst wall consisted of ovarian tissue, and showed old corpora lutea. A second section showed the tube stretched out in the cyst wall, its lumen containing a few flattened out rugæ, and its walls consisting of unstripped muscle, arranged in bundles cut across and obliquely.

Dr. E. A. Barton, in showing a specimen of

FETUS COMPRESSUS

pointed out that the ovum was passed 10 hours after the normal delivery of an eight months' living child. The woman had married twice, by her first husband having three single children, by the second three sets of twins, besides a single child and a miscarriage. There was no history of twins on either side or syphilis. The fetus measured 7 cm. by 3 cm., but only 5 cm. thick and appeared macerated.

The cord was 10 cm. long by 1 cm. thick.

The placenta was 7.5 cm. by 6.4 cm. but only 1.75 cm. thick.

It appeared normal to the naked eye, though the ovum had remained in utero five months. On section the placenta showed marked degeneration of chorionic villi, and also in a less degree the decidual cells.

REVIEWS.

THE PRINCIPLES OF OBSTETRICS. A Practical Manual for the Student and General Practitioner. By STANLEY PERKINS WARREN, M.D., Obstetric Surgeon to the Maine General Hospital; Consulting Physician to the Maine Eye and Ear Infirmary. Profusely Illustrated. Pp. 373, 8vo. New York: William Wood and Company, 1903.

So far as the needs of the General Practitioner are concerned the most conspicuous defect of recent text-books is their voluminous size. To meet the demand from the rank and file of the profession for an authoritative, practical, safe book within the smallest limits compatible with clearness and efficiency the present work is written. The essential facts are presented in the plain straightforward form best adapted to the requirements of ordinary private practice where the refinements of the hospital armamentarium and nursing are conspicuously absent; yet it teaches that an efficient aseptic midwifery is possible under the restrictions of the private home.

The illustrations are nearly all new, are unusually well selected, are well produced and are not excessive in number.

The book is divided into sections representing Anatomy; Physiology of Reproduction; Symptoms and Diagnosis of Pregnancy; Hygiene and Disorders of Pregnancy; Mechanism of Labor; Normal Labor and the Puerperium; Pathology of Labor; Obstetric Operations; Accidents Complicating Labor; Pathology of the Puerperium; and Pathology of the New-born Child.

The book is plainly and strongly bound; the type clear and the presswork excellent.

A TEXT-BOOK OF OBSTETRICS. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Octavo, 900 pages, with 746 illustrations of which 39 are in colors. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Fourth edition, enlarged and revised.

To those who are familiar with the previous editions of this book it will appear as a practically new work. It has been rewritten from cover to cover, and changes and additions to the text are to be noted on nearly every page.

The chapters on Pelvimetry and Pelvic Anomalies, which have always been striking features of this book, have been enlarged and brought thoroughly up to date, and even include a description of so recent an instrument as the "Neumann-Ehrenfest Kliseometer." In like manner, and also showing the extent to which the author keeps abreast with the times, the Bossi cervical dilator is illustrated and discussed although it is an instrument which has been introduced into this country within the year. We regret that

we cannot give to the Bossi dilator the endorsement accorded to it by the author of this work, for we feel that it is an entirely too powerful piece of mechanism to be applied to the living tissues and that a cervix which cannot be dilated without exercising the degree of force which this appliance exerts is not to be regarded as a dilatable one. The amount of space devoted to the discussion of injuries to the genital tract due to parturition, and the exhaustive and minute directions for their immediate repair, will appeal at once to the reader who appreciates the intimate relation which neglected injuries of this character bear to the causation of so many of the disorders from which women suffer in after life.

Many new illustrations have been added and many of the old ones have been replaced by others which bring out more clearly the meaning of the text.

In a word, the author has accomplished the paradoxical feat of improving what had seemed to be already perfect, and we know of no work which can be recommended to the student and practitioner with a greater assurance that it will fill all the requirements of a safe and trustworthy guide in both the theory and practice of obstetrics.

The volume is a credit to its author and to obstetric teaching in this country and the publishers have presented it to the reader in a form fully commensurate with its literary and technical excellence. J. B. C.

A Nurse's Handbook of Obstetrics. For use in Training Schools. By Joseph Brown Cooke, M.D., Adjunct Professor of Obstetrics at the New York Polyclinic; Fellow of the New York Obstetrical Society; Lecturer on Obstetrics to the New York City Training School for Nurses; Surgeon to the New York Maternity Hospital, etc. Pp. 391, 8vo. J. B. Lippincott & Co., Philadelphia and London, 1903.

This volume contains all of the science and art of obstetrics that a nurse need know in order to practice her profession in an intelligent manner. It contains besides a clear exposition of the principles and practice of maternity nursing and is written to fill the gap between the incomplete and purposely "popular" books on the subject and the strictly medical work. Statistics, discussions and theories have been omitted and the author, whose style is interesting and straightforward, has presented the subject in a way to be easily understood by the beginner. Details are treated with minute care and there is purposely considerable repetition. A glossary contains many words intended to facilitate collateral reading.

Adeno-myome des Uterus. By Thomas S. Cullen, Associate Professor of Gynecology, Johns Hopkins University, Baltimore. Berlin, 1903. August Hirschwald.

In this monograph of ninety pages which was intended for Prof. Johannes Orth's Festschrift and which arrived too late for

publication, Cullen has given the results of his studies on those myomata of the uterus and adnexa in which glandular elements resembling the uterine mucous membrane can be demonstrated. He describes with considerable detail some twenty cases which have come under his own observation and refers to a number of similar cases in the literature. These tumors appear not to be very common, nineteen cases were found in an examination of seven hundred uterine myomata.

They may originate from the mucous membrane, Wolffian body, or Müller's duct. They may involve almost any portion of the uterus, tubes or ovaries, and curiously enough may involve the round ligaments. Occasionally adeno-myomata may change their type and become carcinomatous. Since the diagnosis can only be made definitely on microscopic examination the indications for treatment are the same as for the usual type of myomata. The monograph is written to show that the majority of these growths owe their glandular origin to portions of the uterine mucosa that have extended into them.

The book, which is printed in German, is well illustrated and will be found useful to those who are especially interested in the pathology of these organs. E. H.

VAGINALE UND ABDOMINALE OPERATIONEN. KLINISCHER BEITRAG ZUR MODERNEN GYNAEKOLOGIE. Von Dr. KARL ABEL, Berlin, 181 pages. A. Hirschwald, Berlin, 1903.

The author's main object seems to be to extol the advantages of vaginal operations. All risks and disadvantages of abdominal operations are carefully enumerated in the introduction. On the evening before an abdominal operation the author makes use of a steam spray for several hours, to cause all particles of dust to settle, so as to make the air of the operating room germ free during the operation. Sublimate solution, to be used for irrigating, is previously boiled. The Trendelenburg posture is not advocated, the horizontal posture being given the preference. The incision should be made as small as possible. In the statistical table of operations for diseased adnexa, contamination of the peritoneal cavity with pus from rupture of pyosalpinx took place 12 times, of these patients three died.

In the technique of vaginal operations the author mentions as important in the preparation of the patient that the bladder should not be emptied, because it is easier to push a filled bladder off the cervix. To overcome retroflexion of the uterus, if an operation is to be performed at all, the method of choice should be vaginal fixation. He attaches the body of the uterus to the vesical reflexion of the peritoneum, as in the technique advocated by Duhrssen. The author maintains that Alexander's operation for shortening the round ligaments, and the vaginal shortening of the round ligaments are operations of little utility. He does not believe they give satisfactory results. If the author had as much experience with Alexander's operation properly performed under

correct indication as he has had with vaginal fixation, he would probably come to other conclusions.

Ovarian tumors, with rare exceptions, should be removed per vaginam. Ten cases tabulated were successful. In the table of vaginal sections for the removal of diseased adnexa No. 30 died, but the author does not consider the death due to the method. Rupture of a dermoid tumor of the right ovary took place during enucleation. It is also probable that an hematosalpinx was present. The patient died on the third day of peritonitis. We think it is extolling vaginal section beyond reason to consider that in this instance the fatal termination was not due to the method.

In doing a vaginal hysterectomy the author does not pursue the customary technique but delivers the uterus through an anterior longitudinal vaginal incision, then examines the adnexæ etc. and then proceeds further with the operation. The organ is separated last at the posterior vaginal wall. His object in pursuing this course is to enable him to determine whether there really is an indication for a radical operation. In following the technique usually adopted, it would be impossible to practise conservatism. Clamps are entirely dispensed with.

In the criticism on abdominal operations for fibro-myomata the author considers this route as that of last resort. In undertaking an abdominal operation for the removal of myomata, only panhysterectomy should be done.

Of 23 vaginal hysterectomies done for the removal of myomata, three patients died.

An unbiased review of the monograph would lead the reviewer to believe that American operators, who have had much larger experience than the author both with abdominal and vaginal operations, would be likely to differ with him in many respects.

H. J. B.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. For Practitioners and Students. A Complete Dictionary of the Terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches, including much collateral information of an encyclopedic character, together with new and elaborate tables of Arteries, Muscles, Nerves, Veins, etc.; of Bacilli, Bacteria, Micrococci, Streptococci; Eponymic Tables of Diseases, Operations, Signs and Symptoms, Stains, Tests, Methods of Treatment, etc. Third Edition, Revised and Enlarged. By W. A. NEWMAN DORLAND, A M., M.D., editor of the "American Pocket Medical Dictionary." Large octavo, pp. 798, bound in full flexible leather. Philadelphia, New York, London: W. B. Saunders & Company, 1903.

Among the flood of dictionaries there are a few which warrant the trouble of revision. Dorland's "American Illustrated Medical Dictionary" is one of these. It presents in fairly compact form a vast amount of information, handsomely dressed and admirably illustrated. It fully deserves the success with which it has met.

THE AMERICAN POCKET MEDICAL DICTIONARY. Edited by W. A. NEWMAN DORLAND, M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania. Containing the pronunciation and definition of the principal words used in medicine and kindred sciences. Fourth Edition, Revised and Enlarged. Pp. 566, 64 tables. Philadelphia, New York, London: W. B. Saunders & Company, 1903.

Born in 1898, this little volume has already reached its fourth edition. Several thousand new terms have been added since its last appearance and the entire work is said to have been revised. It is presented in the same elegant attire as its larger brother, the "American Illustrated Medical Dictionary" and is equally welcome in its more modest function of pocket companion.

PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST. By RICHARD C. CABOT, M.D., Physician to Out-patients, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School. Second revised edition. Pp. 319, with 147 illustrations. New York: William Wood and Company, 1903.

We warmly welcomed the appearance of the first edition of this concise and excellent work on physical diagnosis three years ago, and further acquaintance has only served to deepen the first favorable impression. The present edition shows the elimination of a few undesirable cuts, the insertion of a number of X-ray pictures and of a short discussion of methods and instruments for measuring arterial pressure, and a few minor additions. The writer acknowledges that the subject of the study of arterial pressure by instrumental means is in its infancy, but believes that when developed it will be of great value, especially in diseases of the heart, kidney, suprarenal glands, intracranial hemorrhage or tumor, and surgical shock.

THE PRINCIPLES AND PRACTICE OF HYDROTHERAPY. A Guide to the Application of Water in Disease for Students and Practitioners of Medicine. By SIMON BARUCH, M.D., Professor of Hydrotherapeutics in the New York Post-Graduate Medical School and Hospital, etc. Second edition, revised and enlarged. Pp. 496, with numerous illustrations. New York: William Wood and Company, 1903.

Like other therapeutic measures hydrotherapy has been alternately overdone and neglected; but it is now beginning to receive the recognition which it deserves, not as a panacea, but as a remedial measure in selected and investigated cases. The new edition of Baruch's work accordingly shows less pleading for the adoption of hydriatic measures than formerly. In view of the importance of hydrotherapy in the treatment of typhoid the long discussion of its advantages and disadvantages appears justifiable in a book which is to go to those districts which are behind the large cities in their appreciation of the value of this line of

treatment. The work opens with a consideration of the physiological effects of water and of the functions of the skin. The writer leads up to the practical application of hydrotherapy by a discussion of its physiological action as regards the various functions and excretions of the body in health. Having shown the scientific basis of the use of water under normal conditions, he describes the various modes of applying the remedy and later, the application of these in various diseases. Typhoid fever, pneumonia and neurasthenia justly receive extensive consideration. The technique of each procedure is fully described. For facility of reference the work might be improved by condensation.

MANUAL OF HYGIENE AND SANITATION. By SENECA EGBERT, A.M., M.D., Professor of Hygiene and Dean of the Medico-Chirurgical College of Philadelphia, etc. Third edition. Pp. 473, with 86 illustrations. Lea Brothers & Co., Philadelphia and New York, 1903.

Hygiene is one of the subjects concerning which the average medical student is least informed. Naturally enough the diagnosis and treatment of disease appeals to him far more strongly than the subject of prevention, and the ordinary curriculum tends to increase this feeling. He is soon brought face to face, after graduation, with the problems of hygiene and sanitation. Under these circumstances such a work as this of Egbert is a friend in time of need. It handles the subject in a simple and practical way, treating of the chief problems connected with ventilation, heating, lighting, drinking water, food, stimulants, personal, school and military hygiene, disinfection, quarantine, and removal and disposal of sewage. It contains a chapter on methods of examination of air, water and food. The work makes no pretence of presenting the subjects connected with hygiene and sanitation elaborately, but everything that it contains one should know and understand. Its field of usefulness is not limited to students.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc., assisted by H. R. M. LANDIS, M.D., Assistant Physician to the Out-patient Medical Department of the Jefferson Medical College Hospital. Vol. III. September, 1903. Diseases of the Thorax and its Viscera Including the Heart, Lungs and Blood-vessels; Dermatology and Syphilis; Diseases of the Nervous System; Obstetrics. Pp. 398. Lea Brothers & Co., Philadelphia and New York, 1903.

The present volume is by the same contributors as the corresponding number for 1902. The portions which will appeal particularly to the readers of this journal are that by Richard C. Norris on Obstetrics and on Syphilis by William S. Gottheil. The other portions will interest those in the field of general medicine.

A LABORATORY GUIDE IN URINALYSIS AND TOXICOLOGY. By R.
A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics,
and Toxicology in the Medical Department, Cornell University,
etc. Fifth edition. Pp. 115. New York: William Wood and
Company, 1903.

This little guide for students is arranged like a pocket note-
book. The text is printed on one side only of each page, thus al-
lowing space for notes. It contains directions for the qualitative
and quantitative examination of urine and for the detection of
common poisons.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTE-
TRICIANS AND GYNECOLOGISTS. Vol. XV, pp. 376. Press of
Stettiner Bros., Duane Street, New York, 1903.

This volume contains the full text of the valuable papers and
discussions brought before this society at its fifteenth annual meet-
ing held at Washington on September 16, 17, and 18, 1902 and
published in this journal for November and December of that
year.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGI-
CAL ASSOCIATION. Volume XV. Edited by W. D. Haggard,
M.D. Pp. 438. Published by the Association, 1903.

The rapid growth of this flourishing society in the quality of
its papers and the increase in its membership are well shown in
this volume which contains the text of some thirty interesting
papers presented at the fifteenth annual meeting held in Cincin-
nati in November, 1902. Abstracts of many of these have al-
ready appeared in these pages.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Placenta Previa.—Daniel Longaker (*Amer. Med.*, Sept. 19)
is of the opinion that combined version is peculiarly suited to cases
of placenta previa, especially in the absence of imminent labor,
and from the twenty-eighth to the thirty-sixth week of
gestation. When the diagnosis of placenta previa is made and
the child is viable, labor should be induced. If the patient is in-
accessible the period of fetal viability should not be awaited. Com-
bined version for the early cases is much easier than at term,
barring occasional difficulty in securing sufficient dilatation of the
os. A premature baby has much better chance of survival than a
larger one. The writer reports 17 cases of placenta previa with

one maternal death. Of the children, eight were born alive, six being delivered by combined version, one by forceps and early rupture of the membranes, and one by rupture of membranes and suprapubic pressure.

Danger of Allowing Lactation and Pregnancy to Overlap.— Henry M. Church (*Ed. Med. Jour.,* Sept.) believes that if a more careful study were made into cases of pregnancy occurring when the woman was nursing that the following conditions would be found: (1) That the suckling was or became a delicate child, that he at one or other stage of his development suffered from some affection of the nervous system, and that he was the mentally weak one of the family; (2) that during lactation the embryo was prematurely expelled from the uterus, or if it reached full time, that it, in many cases, did so with lowered vitality; and (3) that the mother's health was generally undermined for a longer or shorter time. The writer reports ten cases to support these views.

Puerperal Infection.—Thomas J. Watson (*Clin. Med. Rec.,* Sept. 15) advises giving the patients large amounts of nutritious food, preferably milk, beef juice, eggs, etc., and the free use of liquids to keep the toxines diluted and to force the excretions. This is often done best by the use of normal saline solution in the rectum or under the skin. Antistreptococcic serum may be tried and if a reaction is obtained it should be repeated in twelve hours. In every case the uterine cavity should be explored for remnants of the products of conception, the finger being preferable as a more accurate diagnosis can be made. When the uterine cavity is empty curettage is only harmful, as are also intra-uterine douches. Vaginal douches may be given under low pressure if the lochia tends to accumulate in the vagina. Major operations are not indicated in the absence of peritonitis and pelvic tenderness and when no swelling can be found in the pelvis, if the general condition of the patient indicates improvement. Vaginal section may be performed to drain pus cavities, as when the cavities are nearer the abdominal wall they may be drained by an abdominal incision. Hysterectomy is a valuable operation in occasional cases of (1) puerperal infection in a fibromyomatous uterus; (2) when much inflammatory exudate or suppuration exists in the uterine wall; (3) as a supplementary procedure to salpingo-oophorectomy, where the broad ligaments contain abscesses, for the purpose of establishing free drainage per vagina. Excision of the uterine appendages is reserved for cases when a diagnosis of suppuration is made, where the abscesses are located or so numerous that they can not be readily incised and drained.

Management of Pregnancy Complicated with Uterine Fibroids.—Amand Routh (*Br. Med. Jour.,* Oct. 3) enumerates the changes of fibroids complicating pregnancy as follows: (1) During pregnancy the rapid enlargement of fibroids and its consequences, degeneration of fibroids, abortion and its consequences, hemorrhage and sepsis. (2) During parturition, fetal malpresentations, obstruction, hemorrhage. (3) During the puerperium,

degeneration or extrusion of a submucous fibroid, sepsis and secondary infection of the fibroids. It is almost universally stated that fibroids tend to increase rapidly in size during pregnancy. No doubt the growth depends upon the blood supply which varies according to its position, relatively to the placental site. In a few cases fibroids tend to atrophy during involution, more frequently the intramural fibroids tend to become subserous. Occasionally, after labor, submucous fibroids tend to degenerate and even become necrotic or may be extruded into the uterine cavity and expelled without serious results. Usually, however, in the process of extrusion the circulation is arrested and sloughing occurs, and if the fibroid is not expelled, sapremia or septicemia may follow. If infective organisms are present in a puerperal endometrium, submucous, or even more distant fibroids are very easily infected, and fatal peritonitis may result. Infection after abortion is far more serious than at full term. It seems probable that fibroids are not by any means a frequent cause of sterility. Statistics seem to prove that the proportion of abortions with fibroids is very little greater than the normal average. In labor complicated with fibroids delay is the rule, and in non-obstructive cases is due to irregular uterine action, as the various muscle fibers cannot act co-ordinately. Post partum hemorrhage is more frequent than in normal labor. The prospect of obstruction depends upon the position of the fibroid. If growing from the fundus or body, there will be no obstruction unless it has a very long pedicle. If the fibroid grow from the anterior part of the supravaginal cervix obstruction is rare, for the fibroid is usually above the brim, or is soon spontaneously elevated. If the fibroid grow from the posterior part of the supravaginal cervix obstruction may readily follow, owing to the liability of the fibroid to be arrested below the sacral prominence. In such a case the uterus often takes a half rotation so that one or other broad ligament lies to the front. The puerperium is retarded, but not impaired, the real danger is that the uterus may become infected. If the patient is seen before fetal viability and obstruction should appear to be probable, attempts may be made to elevate the fibroid by gentle digital or hydrostatic pressure. Forcible reposition is to be avoided. As any or all obstructive fibroids may be elevated in the later months of pregnancy it seems to be advisable to adopt an expectant attitude. Abortion is dangerous and often a very difficult procedure. Myomectomy is now the ideal indication for treatment when pressure symptoms develop before fetal viability, and it should always be kept in mind as a possible alternative to hysterectomy when celiotomy is performed before full term. Hysterectomy before fetal viability is required after an incomplete abortion, where intractable hemorrhage or sepsis is present, also where the pressure symptoms are serious, where the fibroids are multiple or too deeply imbedded to make myomectomy possible. If the patient is first seen after viability the indication is to leave things alone so long as the mother's life is not endangered. If the fibroid is cervical and can-

not be elevated we have to enucleate it. When celiotomy is determined upon, Cesarean section should be the first step, either leaving the fibroid to be dealt with later, or doing a myomectomy if all the tumors can be removed and the patient is still young, or performing hysterectomy. When post-partum hemorrhage occurs and cannot be stopped by the ordinary methods hysterectomy may be required. If sepsis occurs the uterus should be emptied of all debris, douched with iodine and water and have its lining swabbed out with strong iodine. Should these measures fail to reduce the temperature, hysterectomy should be performed, panhysterectomy being preferable to the supravaginal operation.

Kidneys in Eclampsia.—Paul Bar (*L'Obstetrics,* May) has studied the kidneys of 38 fatal cases of eclampsia and presents a rather indefinite set of conclusions. In all these were macroscopic and microscopic lesions. · They were extremely severe in 16.66 per cent., of moderate intensity in 37.5 per cent., slight in 33.33 per cent., and very slight in 12.5 per cent. There appeared to be no relation between the severity of the renal lesions and those of the liver.

Dystocia Due to Fractured Pelvis.—One of the uncommon causes of dystocia is reported by Ludwig Blumveich (*Arch. für Gyn.,* Bd. 69, H. 1). As the result of a fracture of the pelvis the pelvic cavity was contracted, as shown by the accompanying X-ray picture. The fractured horizontal ramus of the left pelvic bone was displaced inward and callus further increased the deformity. The mechanism of labor was that of generally contracted pelvis, extreme flexion of the head, which entered the normal right half of the inlet. Labor was terminated by perforation of the fetal head.

Treatment of Placenta Previa by Bossi's Instrumental Dilatation.—From Bossi's own clinic comes an enthusiastic endorsement of his method of rapid dilatation of the cervix, by Wilhelm de Paoli (*Arch. für Gyn.,* Bd. 69, H. 1). This was carried out in nineteen cases of placenta previa, chiefly central, in which severe bleeding demanded rapid delivery. Of these there was one material death from hemorrhage and three children were lost. In no case was there a laceration of the cervix which demanded suturing. The time required for dilatation was from five to twenty-five minutes, the cervix being either completely closed or admitting not more than one finger.

Differential Diagnosis of Umbilical and Cardiac Murmurs of the Fetus.—To the seven previously reported cases, which are described in abstract, O. Hoehne (*Arch. für Gyn.,* Bd. 69, H. 1) adds the description of a personal observation in which the ante-partum diagnosis of a congenital heart lesion was confirmed by autopsy. The features, all found in his own case, which he considers diagnostic of a cardiac lesion present during pregnancy and labor are: the rough character of a murmur not synchronous with the mother's pulse; its constancy as regards duration and intensity; the continual absence usually of both fetal

heart sounds, more rarely of the first sound only; and the great area of the abdomen over which the murmur is heard, with its point of maximum intensity corresponding to the region of the fetal heart. In view of the fact that congenital heart lesions usually make the life of the child brief, even if it survives the period of labor, Hoehne considers that the practical point to be insisted upon is that once the presence of the above signs has permitted a diagnosis of a fetal heart lesion, no procedure should be attempted in the interest of the child which will in any way endanger the mother.

Symphyseotomy.—In discussing the indications for this procedure, V. Cocq (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, T. XIV., No. 1) outlines the chief of these as the probability of previous infection of the uterine cavity by repeated ineffectual forceps applications, and the inability to obtain suitable assistance to perform Cesarean section. If the child is dead, however, or the woman's condition desperate, the environment unsuitable for aseptic surgery, and the physician alone, poorly assisted or unskilled in surgery, embryotomy is the only resource. Cocq considers symphyseotomy as an intermediate operation between Cesarean section and embryotomy. He would employ it most often in pelves with a true conjugate of seven to nine centimeters, first trying forceps or version in pelves not smaller than eight. He does not approve of the combination of symphyseotomy with induction of premature labor or embryotomy in pelves of five to seven centimeters. A description of operative technique is appended.

Indications for Induction of Labor in Hyperesis and Cardiac Disease.—O. Tuszkai (*Berl. klin. Woch.*, No. 35) insists upon the necessity for eliminating hysteria and local causes for vomiting before diagnosticating hyperemesis of pregnancy. Pregnancy should be interrupted when the diagnosis is established, only when local applications of heat or cold to the abdomen or vagina cause no improvement; when the degree of inanition has become very marked, as is shown by rapid loss of weight, diminution of the quantity of urine, of the urinary chlorides, and of red blood cells, increase of specific gravity of the urine, the alkalinity of the blood, and the frequency of the pulse; and when large doses of opium fail to check this inanition by controlling excretion. Having rediscovered the well-known fact that a beginning recurrence of failure of compensation will bring back to the pulse the signs of dilatation which had previously disappeared as compensatory hypertrophy took place in a dilated heart, the author lays great stress upon this change in pulse, "my pulse symptom." This sign of returning failure of compensation should lead to watchfulness, in order that labor may be induced early if sufficient compensatory hypertrophy does not occur.

Prolonged Lactation.—Nussbaum (*Münch. med. Woch.*, No. 21) reports two cases of prolonged lactation after weaning. In the first, the child had been removed from the breast at nine

months, yet the organs were secreting profusely eighteen months later. In this case there were symptoms of exophthalmic goiter. In the second case weaning took place also at nine months, and a year later the breasts were still active.

Treatment of Eclampsia.—According to E. Bumm (*Münch. med. Woch.*, No. 21), 43 cases of eclampsia treated from 1895 to 1900, by morphine, chloral, chloroform, diaphoresis, with bleeding and transfusion in a few severe cases, gave a mortality of 30 per cent. In contrast he has since treated 25 cases by immediate delivery by abdominal or vaginal section, forceps, or version, with a mortality of only 12 per cent. He strongly favors the latter treatment, especially when the patient is seen soon after the first convulsion, with pulse and lungs in good condition. If the cervix is well dilated he would employ forceps or version, according to the position of the head, and perforation if the child is dead or dying. If the cervix is dilated just enough to permit combined version, he would perform this and hasten dilatation by tractions upon the foot brought down. If the cervix is not dilated and the woman's condition is such as to demand immediate delivery, he would favor Dührssen's vaginal Cesarean section rather than risk the use of metallic dilators.

GYNECOLOGY AND ABDOMINAL SURGERY.

The So-called Necrobiosis in Fibromyomata of the Uterus.—John S. Fairbairn (*Jour. Obst. and Gyn.*, Br. Emp., Aug.) finds the tumors most frequently affected by this fleshy necrobiotic change are the interstitial fibroids of medium size. In spite of their blood-stained appearance they are not engorged with blood, and hemorrhage and vascular congestion are not the marked feature in these tumors. The characteristic change is one of necrosis, as shown by the disappearance of the nuclei, or by their inability to take up nuclear stains, and later by a softening and disintegration of the muscle fibers. Their color is probably due to a diffusion of blood pigment through the dead tissue by a process similar to that which occurs in the laking of blood. The change begins in the center of the tumor, and when it is partial the central portions only are involved. The process occurs most frequently during the child-bearing period of life, and pregnancy has a distinct predisposing influence in its production. Pain is a very frequent symptom, and is the most common cause of surgical interference; tenderness of the tumor is less frequently observed, fever is unusual. The occurrence of severe pain in a patient with fibroids, especially during pregnancy or shortly after its termination, strongly suggests a necrotic process in the tumor, and gives a distinct indication for operative interference.

Cystic Fibroma.—J. Clarence Webster (*Jour. Obst. and Gyn.*, Br. Emp., Aug.) reports the successful removal of a cystic fibroma weighing 87 pounds. The patient's greatest circumference before operation was five feet. The operation lasted two and one-

half hours. During the first hour no anesthetic was used except Schleich mixture in the skin. During the remaining one and one-half hours 2 grms. of chloroform were employed.

Cystic Degeneration of the Mamma.—A. G. Ellis (*Ann. of Surg.*, Sept.) reports a case of cystic degeneration of the breast which was undergoing a transformation into scirrhous carcinoma. The writer reports this case in support of his belief in the strong probability of malignant transformation occurring in cases of cystic degeneration of the female breast.

Carcinoma of the Breast.—Lewis Stephen Pilcher (*Ann. of Surg.*, Sept.) states that practically every case of carcinoma of the breast, when it has reached that degree of development by which a palpable tumor is formed, is already in an advanced stage. Hence those surgeons alone are rational and correct who insist that in every case that comes to operation a far-reaching and wide-extending removal of overlying and adjacent tissue shall be made together with the removal of the affected breast itself. A large proportion of absolute cures may be expected if surgery is resorted to as soon as the cancer is discovered.

Treatment of Cancer.—C. H. F. Routh (*Br. Gyn. Jour.*, Aug.) discusses some of the newer methods of treating cancer and its apparent causes. He advises more perfect drainage of our cities. The employment of oxygen freely in the body in various ways, so as to render the injurious effects of the organism inoperative. Experts are needed to prove how electricity, by shock or vibration, may insure the destruction of the organisms, and means must be devised to apply the crushing system by ice from liquid air or hydrogen through some effective apparatus. He reports two cases of malignant disease of the vagina treated successfully with hydrogen peroxide.

The Radical Operation for Cancer of the Uterus.—K. Franz (*Br. Gyn. Jour.*, Aug.) advocates the radical abdominal operation, as by it alone are we able to deal with the local lymphatic glands, and to remove with the uterus as much of the pelvic connective tissue as may be desirable, and it thereby fulfils a surgical postulate accepted in every operation for cancer, *i.e.*, the resection of the lymphatic glands of the part and of as much as possible of the tissue about the disease. The principal danger of the operation is that of infection, and on this account extremely careful preliminary treatment of the cancer of this kind is required to prevent infection. The writer is convinced that in circumscribed cancer, though the radical abdominal operation may have a higher mortality than vaginal total extirpation, it has the important advantage of being a far more logical proceeding and gives a better chance of permanent cure.

Hemorrhage Following Pelvic Operations.—To control hemorrhage following pelvic operations, John A. Sampson (*J. H. H. Bul.*, Sept.) packs the pelvis with gauze through a proctoscope. He prefers the proctoscope as it has an obturator and so can be easily inserted; it permits an inspection of the field

of operation and easily permits packing with wide strips of gauze. The proctoscope is inserted through the lower end of the abdominal incision; it can then be pushed down into the pelvis with little pain, and by withdrawing the obturator the pelvic field can be studied. The entire pelvis is thoroughly packed, as is also the vagina; pads are placed upon the lower abdomen and a tight abdominal bandage put in place.

Pelvic Inflammation.—According to G. E. Herman (*Clin Jour.*, Aug. 26), it is doubtful whether the gonococcus ever causes much suppuration in the Fallopian tubes. When we find much pus in the tubes it is really an instance of mixed infection. When pus is retained in the tubes the gonococcus disappears. So long as gonorrhea in the female does not get to the cervix uteri, it is a trifling disease. Septic infection may spread through the vagina and uterus to the tubes without any symptoms until the peritonuem is reached. The swelling is produced by the inflammation extending along the tubes to the ovary, causing a swelling, which, to the touch is rounded. There is no way of telling which is most involved, the tube or ovary. As both tubes are equally exposed to infection the disease is generally bilateral. Another cause of salpingitis leading to peritonitis seems to be cold, because occasionally we see it in virgins ending in complete recovery, where there appears to have been no way in which septic germs could have been introduced. Herman believes it is possible for pelvic peritonitis due to gonorrhea to get well without leaving any symptoms, as may also adhesions. Sometimes suppurated Fallopian tubes burst, causing fatal peritonitis. This is due to an acute ulcerative process. Pyosalpinx, if it perforates, will perforate soon, as the old cases are surrounded by strong adhesions. The danger of salpingo-oöphoritis and pelvic peritonitis is that the patient may become a chronic invalid. The disease is liable to relapses and then the only means of cure is removal of the diseased parts. The treatment without operation consists of perfect rest, good nursing, counter-irritation and opium to allay the acute pain. The larger and more definite the swelling the more clear is the necessity for operation. The best time to operate is between the attacks of acute inflammation.

Conservative Treatment of the Uterine Appendages.—George Granville Bantock (*Br. Gyn. Jour.*, Aug.) finds that in the course of an ovariotomy it is true conservative surgery to remove the second ovary if it shows palpable disease. That in the case of ectopic gestation or salpingitis, either acute or chronic, it is advisable in the great majority of cases, if not in all, to do the double operation. That the practice of ignipuncture or partial resection of a suspected ovary is not founded on specific data. That it is not true conservative surgery to leave an ovary in cases of complete hysterectomy. That the operation of salpingotomy seems to have no claims to be regarded as an operation worthy of acceptance.

Observations on the Placenta of the Rabbit.—W. W. Chipman (*Studies from the Royal Victoria Hospital,* Montreal. Vol. I, No. 4) presents the results of a vast amount of original research upon the placenta of the rabbit, with especial reference to the presence of glycogen, fat and iron, and gives also an abstract of the work of other observers. His paper contains many micro-photographs of placentæ obtained almost daily from the fourth to the thirtieth day after impregnation. As a result of these investigations he presents the following interpretation of disputed points: (1) The origin of the giant cells. They arise from epithelial cells, either surface or glandular, and are found in considerable number in the sub-mucosa, or between the innermost fibers of the circular muscle-layer. They are seen only in the non-placental mucosa, and appear at the sixth day of gestation and persist until the fourteenth. (2) The attachment of the ectoderm to the uterine epithelium. The thickened ectoderm of the area of placental attachment is altogether cellular, large, well-defined cells, with big, round or oval, and active nuclei. This is the condition at the eighth day, when attachment is just beginning and at the ninth day, when the uterine epithelium has disappeared. Only at the tenth day a plasmodial change begins in the ectodermal cells. (3) The origin of the multinucleate decidual cells. They arise by direct division—increase of cell-substance and multiplication of nuclei—from the uninucleate decidual cells of the perivascular sheaths. They are seen first at the ninth day close to the fetal ectoderm, for the thin sheaths of the most superficial capillaries are first affected. Twenty-four hours later they form a zone in the maternal placenta of considerable thickness, the intermediary zone. (4) The origin and nature of the maternal blood-cavities swallowed by the ectoderm. The fetal ectoderm as it advances, surrounds and includes, swallows, maternal blood-spaces. These spaces then present three varieties. (a) The maternal capillary, whose thickened endothelial wall is surrounded and replaced by the ectodermal cells. (b) Hemorrhagic cavities, whose ragged walls are composed, in part at least, merely of decidual cells compressed by the hemorrhage. In such cases the degenerate endothelium has snapped before the capillary has been completely surrounded by the ectoderm. (c) The deep glandular cul-de-sacs. These become at first solid by hypertrophy of their lining epithelium. The solid cul-de-sacs soon become vacuolated, and so changed into sharply-defined cavities, into which hemorrhage from a neighboring weakened capillary subsequently occurs. (5) The nature of the so-called "villi." The essential plan of the rabbit's placenta is most plainly evident between the tenth and fourteenth days. As seen then in section the fetal placenta may be likened to a row of test-tubes set with their open ends upon the maternal tissue. The walls of the test-tubes are composed of ectodermal cells, and their axes represent maternal blood-spaces. These tubes are set some narrow distance apart, and are separate the one from the other save for a thick collar, cellular like their walls, which

binds them together near their open extremity. In this way the set of tubes presents a face to the maternal tissue, interrupted only at the open ends of the tubes which come to abut upon maternal blood-vessels. Fill the intervals down to the binding collar between these tubes by mesoderm, vascularised by allantoic vessels, and the scheme is complete. Thus there is an interdigitation of tissues, but only of fetal tissues. The fetal placenta is functionally the placenta. Long villi, plunged finger-like into the midst of maternal sinuses, do not exist in the placenta of the rabbit. (6) The fate of the placental glands. The gland-channels become solid and stalk-like between 8 and 8½ days, due to hypertrophy of their lining epithelium. These solid channels disappear at the ninth day, leaving their deep cul-de-sacs, now likewise solid, completely isolated in the surrounding corium. The fate of these cul-de-sacs has been described in point 4. (7) The behavior of the sinus endothelium. The endothelium of the uterine sinuses at first thickens, its cells remaining distinct. These cells increase rapidly in size, become globular, and multiply until the lining endothelium is represented by several rows of these large cells. The cells become detached, fibrin-lamellæ forming beneath them, and they disappear in the blood-stream. This process continues from the sixteenth day onward, until at the 24th day the wall of the uterine sinuses is composed solely of fibrin-lamellæ. (8) The junction of the two tissues, maternal and fetal. After the twelfth day, and owing to the continued growth of its lateral portions, the fetal placenta becomes reniform in shape, with a hilum of maternal tissue. Further the ingrowth of the fetal ectoderm upon maternal tissue is always somewhat more advanced along the course of the blood-channels. For these reasons the junction of fetal and maternal tissue is always irregular. But there is no intergrowth of the two tissues; the fetal ectoderm is laid as a complete covering upon the maternal placenta, a covering interrupted only by the passage of the vessels. (9) The determination of the zone of separation. This zone is determined by the depth to which the fibrin-tissue, first seen at the tenth day, penetrates along the tracks of the original corium, into the region of the uterine sinuses. The contact of the fibrin-tissue with the perivascular sheaths is coextensive with the transformation of their uninucleate into multinucleate cells. Thus the penetration-limit of the fibrin-tissue establishes the penetration-limit of the multinucleate decidual cell, and the zone that persists between the multinucleate cells and the musculature is the zone of separation. (10) The fate of the decidual cells. These cells, both uni- and multinucleate, pushed further and further away from the lumen of the uterine sinuses by the continual building up of the fibrin-lamellæ, become more and more compressed between the lamellæ of the neighboring sinuses. At the same time there is, through these fibrin-walls, a slow extravasation of blood into the midst of these cells with a formation of fibrin-tissue. These cells become further compressed and disintegrated until at the twenty-eighth day they

appear only as so much chromatic débris embedded in the fibrin-tissue.

The rest of the monograph is devoted to a detailed study of the presence of glycogen, fat, and iron in the placenta, fetal liver and subcutaneous tissue.

Vaporization of the Uterus.—An anatomical and clinical contribution to the literature of this subject is furnished by H. Fuchs (*Arch. für Gyn.*, Bd. 69, H. 1). The paper is based upon 103 cases of uterine hemorrhage, of which 35 are omitted as being of recent date or not traced. Of the remaining 68 cases, 60 showed permanent good results after periods of six months or more, except in three cases in which the time which had elapsed was only four or five months. The clinical diagnosis in all cases had been hemorrhagic endometritis usually combined with chronic metritis, and in five instances with uterine fibroids. The favorable results were either immediate menopause, normal menstruation after months or weeks of amenorrhea, or a short period of absence of the flow, followed by normal or scanty menstruation. The best effects were produced by the use of high temperatures, 115° to 120° C., for a short time—30 to 45 seconds.

Treatment of Suppurative Disease of the Adnexa and Pelvic Connective Tissue.—In a paper on this subject, P. Jung (*Arch. für Gyn.*, Bd. 69, H. 1) presents statistics covering 134 cases in the Greifswald Clinic. Of these, 117 received operative treatment, with a mortality of 20.5 per cent. In 101 cases the suppurative focus was intraperitoneal; in 16, extraperitoneal. Bacteriological examination of 81 of the cases showed streptococci, and staphylococci in about 36 per cent.; tubercle bacilli in about 25 per cent., and gonococci in about 15 per cent. In 45 per cent. of the fatal cases streptococci were found, and 92 per cent. of the deaths occurred in cases operated upon by free abdominal incision. The finding of streptococci in closed pus sacs of long duration tends to disprove the theory that such purulent collections become sterile after a year and their contents free from danger to the peritoneum.

DISEASES OF CHILDREN.

The Abuse of Flat-foot Supports.—Wisner R. Townsend (*Amer. Jour. Orthoped. Surg.*, Aug., 1903) says that the treatment of this condition without consulting a surgeon has become very common, as evidenced by the fact that various forms of support are to-day for sale in all the larger stores where footwear can be bought, and the daily, weekly, and monthly lay press, in addition to the medical journals, contain many advertisements of plates, braces, springs, supports, etc., warranted to cure flat feet, perfect in fit, self-adjustable, and easily worn in any shoe. The diagnosis of flat foot is, as a rule, not difficult, but that errors are quite common cannot be denied, and that even the most expert diagnosticians may at times be puzzled as to the true nature of a

valgus deformity, must also be admitted. The most frequent errors in diagnosis are mistaking an ostitis of the tarsus or ankle, a metatarsalgia or neuritis, or an inflammatory rheumatic condition of the parts about the inner side of the foot, for a flat foot. Other errors, but less frequent, are the application of flat-foot supports for pain in the feet due to a cavus deformity, a periostitis of the os calcis, and to extreme grades of malposition after Pott's fractures. In one instance, a sarcoma of the sole of the foot was treated for some time by braces under the idea that the deformity disability and pain were due to flat-foot. When the support is not indicated it frequently does harm. When flat-foot exists, it does not necessarily follow that a support must be applied, because there are contra-indications for its use. Extreme spasm, extreme deformity or inflammatory conditions, may be present, and the use of a support does more harm than good. These contra-indications are well known to the profession, but not to those who simply buy supports as they would buy any article of clothing. Another damage resulting from the indiscriminate use of supports and their application to all cases, suitable and unsuitable, is that many mild in type and easily cured by medical men are allowed to grow worse under this faulty plan of treating a foot disability by those without medical knowledge. Another error of treatment, which is the one that specially deserves to be considered, is the application of supports that do not fit, that do not fulfill the indications for treatment, and that are so poorly constructed that even from the standpoint of their makers they in no sense of the word act as supports, because they are so frail or weak they can barely retain the position or shape they were made, and lose all semblance of it as soon as weight is put on. Different cases require different treatment. The valgus or abduction of the foot must be overcome, the weakened structures must be strengthened, the free and normal motions of the foot must be restored, the deformity overcome, the patient made to walk as patients with normal feet should walk, and the application of a support simply intended to push up a weakened arch can never accomplish this. Temporary relief may be obtained, but never a cure, where a true and severe degree of flat-foot exists. A proper support may be applied, and all its benefits lost by an improper shoe. Perfect reduction of deformity may be gained by the use of a support, and by not strengthening the muscles and cultivating normal movements the foot may be still further weakened rather than improved. The form of support will vary, individual preferences will prevail, but the treatment of flat-foot should be carried on by medical men.

Acutely Occurring Deafness and Blindness in Children.— Alexander James (*Scottish Med. and Surg. Jour.*, July, 1903) states that in 1867 Voltolini described a disease which he called Labyrinthitis. He described it as occurring almost entirely among children, and manifesting itself by symptoms like those of a specific fever, with the indications of cerebral irritation especially

marked—shiverings, high temperature, headache, perhaps ear pain, convulsions or insensibility. After three to eight days the condition improves, but soon it is discovered that the child has become deaf. The author reports two such cases, but in one acute blindness instead of acute deafness developed. The symptoms, however, tell against Voltolini's theory of an acute inflammation of the labyrinth. The view taken by the author is that, be the affection epidemic cerebrospinal meningitis or not, the lesion is one of a toxin involving the nuclei of origin of the auditory and optic nerves. Just as in the anterior poliomyelitis of children we have a toxin picking out the nuclei of origin of the nerves of the voluntary muscles, so may we assume that in this disease we have a toxin picking out the nuclei of origin of the nerves of hearing and sight.   ,

The Dysentery Bacillus in a Series of Cases of Infantile Diarrhea.—Martha Wollstein(*Jour. Med. Research,* Aug., 1903) made a systematic bacteriological study of the stools in 114 cases of diarrhea in infants and young children, with the view of determining the presence or absence of Bacillus dysenteriæ, and whether any special group of clinical symptoms characterizes cases in which the organism is found. The technic used was that recommended by Dr. Flexner and his pupils. The stools were obtained as fresh as possible; where blood and mucus were present some was carefully taken on a sterile swab or platinum loop, and suspended in neutral broth or peptone water. From this suspension agar plates were poured at once or within an hour. Dewal found that the dysentery bacillus grows more profusely on agar that is slightly acid in reaction, and throughout this work such a medium was used. After the plates had been in the thermostat for twenty-four hours, a number of glucose agar tubes were inoculated from them, and twenty-four hours later the gas-producing organisms were rejected. From the tubes without gas, transplants were made to plain acid agar, and then the bacilli were tested as to their reaction with serum from a horse immunized with the Flexner Manila organism. Stools from healthy infants were examined in ten cases. The dysentery bacillus was not found. Conversely, no case from which the stools contained blood as well as mucus failed to show the dysentery bacillus in culture; but many of the negative cases contained large quantities of mucus and undigested food, without blood. It would seem that the tendency in cases of infection with Bacillus dysenteriæ is toward the classical picture of dysentery, as regards the clinical symptoms. Of the 114 cases studied the dysentery bacillus was found in 39. The ages of the children varied from five weeks to four years, but only twenty-one were over one year old and seven over two. The author sums up the results obtained as follows: Cases of infection with the dysentery bacillus in infants tend toward the clinical picture of dysentery, with frequent mucous and bloody stools. In some cases of hospital infection, occurring as terminal to other diseases (especially pneumonia) and in other mild cases,

the stools may never contain blood, but mucus is present in every case, and usually in large amount. The serum reaction is uncertain during the first week, frequently positive after the sixth day, but may be absent for two weeks. It cannot be relied upon for early diagnostic purposes in infants and young children. The isolation of Bacillus dysenteriæ from the stools is the only positive evidence of infection during life. The bacilli are present in the stools for a period of two to three weeks, but may remain for a longer time. The type of the organism almost invariably found in those researches in New York City is that of the "Manila," or Flexner bacillus.

Epilepsy.—Luther C. Peter (*International Med. Mag.,* Aug., 1903) in a consideration of the treatment of this affection says that the facts need to be thoroughly understood to insure success —first, that epilepsy which has its inception in childhood is largely a disease which can be prevented, and, second, that changes in the patient, both physical and mental, are the result of oft-repeated convulsions. The environment of a child often determines the degree of stability of its nervous system, and is often the determining cause of a life of misery in those who are hereditarily predisposed. Epilepsy is a growth, the development of the convulsive habit, as it were, and the disease epilepsy is entirely dependent upon the first convulsion, from whatever cause that may arise. The greatest care should be observed in those who have neurotic tendencies, as to diet, daily bath, sleep, etc. When possible they should be sent to the country. Tea and coffee should be absolutely excluded from a child's dietary; in a study of over 2,000 cases of nervous disorders in children, the author has found these beverages to be the only cause in some of the simpler forms, and a contributing cause in most of the neuroses. A critical time in the life of a child is the earlier educational period. Fewer accomplishments, longer hours for recreation and a correspondingly stronger physique will prevent many of the nervous disorders of childhood. After the epileptic habit has become established, general management is of even greater importance than before. Country life offers the ideal environment. Improvement is very noticeable in patients who have been removed from city occupations to farming and gardening, and a secondary advantage consists in the removal from danger during an epileptic attack. As to diet, no hard and fast rule can be made, but generally speaking, any digestible and easily assimilable food may be allowed if gastro-intestinal disturbance does not follow its use. It is a safe plan to restrict the use of meat to once daily, especially if the patient's occupation does not require a great amount of physical energy. The entire body should be the subject of closest scrutiny to determine, if possible, a remote or immediate cause for the convulsions. The author has never observed marvelous cures of genuine epilepsy by the removal of supposed reflex causes, but he has observed improvement and even cures in incipient cases after the correction of refractive errors, removal of adherent foreskin, relief

of constipation, seat-worms, etc. Refractive errors are especially apt to precipitate convulsions in an epileptic patient. As to drugs, the effectiveness of bromide salts in a large majority of cases is undoubted, but long continued use of even small doses often cause symptoms which are attributed to the disease itself. In mild cases the fluid extract of solanum carolinense acts quite as satisfactorily as moderate doses of bromide salts, and without the depressing effect of the latter. It can be used for long periods without causing toxic symptoms. In children it is especially useful: they stand bromides poorly, so far as their mental condition is concerned. In a child five to six years of age, the author begins the solanum in half-teaspoonful doses, and gradually increases to a dram and a half or even to two drams in children ten years old. This dose can be used three times daily. Minor epilepsy does not yield satisfactorily to solanum. It is, however, trustworthy in mild cases. When the aura or premonitory signs precede the attacks by a considerable interval, inhalations of amyl nitrite are efficient in warding off the attack. The patient might carry one or two pearls of amyl nitrite in 5 to 10 minim doses, according to age, and be instructed to crush them in a handkerchief and inhale at the first warning of an approaching attack. When the aura begins in the extremities and ascends, the sudden encircling of the extremity by a hand or band may be sufficient to stimulate the centers in which the seizure begins, and thus ward off the attack.

The Etiology of Splenic Pseudoleucemia in Children.— Francesco Scalese (*Giornali Internat. delle Scienze Mediche*, Sept. 15, 1903) concludes from the study of a number of cases that among the very obscure causes of this affection, along with rachitis and syphilis, we must place diabetes in the parents, especially the mother. Out of fifteen cases, in ten there was maternal diabetes, in one diabetes of both father and mother, in three there was hereditary syphilis, and in one the cause was unknown. It is also probable that some infection may be carried through the milk of a diabetic mother, for which reason, should diabetes be even suspected, the infant should be weaned.

Eye-strain and Functional Disorders.—Charles A. Wishart (*Penn. Med. Jour.*, Sept., 1903) says that the practitioner who thinks that because a child sees perfectly the eyes are not at fault makes a serious mistake. It is not how *much* but *how* we see that causes trouble. Eye-strain leading to excessive expenditure of nerve force and resulting in brain-fag and functional disturbances, may be brought about in various ways. It may be caused by undue efforts of the ciliary muscle to focus clear and distinct pictures on the retina; by undue effort of the extra-ocular muscles to maintain binocular single vision; or by undue effort on the part of the cortical visual centers to interpret blurred images formed on the retina. Fortunately for the nervous system the normal eye takes pictures of surrounding objects without undue effort when the object is more than twenty feet away; hence during the larger part of each day the normal eye is practically at

rest, although performing its functions. The hyperopic (far-sighted) eye has to focus by muscular effort all objects, irrespective of their distance from the eye. It has no rest while the body is awake. It is always straining, more or less intensely, to bring properly upon the retina the images of objects seen. Young patients with this defect often have remarkable acuteness of sight, can usually read all of the test type without an error, and are apt to boast of their power of vision; careful inquiry, however, will frequently develop the fact that study and close application to books or near work brings with it an indescribable sense of weariness and discomfort, the eyes tire and water, the head aches, the print blurrs, the patient becomes nervous and irritable, and often incapable of concentration of mind and continued application. Near-sightedness is less liable to induce eye-strain than far-sightedness, provided it is not accompanied by astigmatism or muscular insufficiency. Most physicians have become familiar with the idea that eye-strain bears a frequent causal relation to headache, but only a few have entertained the idea that it may bear a causal relationship to functional disorders of the brain and viscera. Epilepsy may be precipitated by purely functional causes. Work Dodd reports forty-nine cases which were cured or greatly benefited by the relief of eye-strain. The amount of relief from the epileptic attacks which may be derived from doing away with ocular strain when that is the exciting cause, will, of course, vary in proportion to the length of time that the patient has been subject to the attacks. Many cases of chorea may be traced to eye-strain; the author reports two cured by the wearing of appropriate glasses. The ill effects of eye-strain are not confined to the nervous system; all of the visceral functions may be disturbed. As the viscera depend upon the brain, may not all the organs under its control suffer if it is disturbed? Two cases of extreme dysmenorrhea were cured by the correction of muscular error in one and of refraction and muscular error in the other. A claim that all functional derangement is the result of eye-strain would be absurd, but the claim that many derangements of functions of various organs is the result of reflex nervous irritation is easily susceptible of proof, and that eye-strain is one of the commonest causes of such reflex irritation can be demonstrated with almost absolute certainty.

Intestinal Cancer in Childhood.—E. Saint Jacques and L. Parizeau (*L'Union Med. du Canada*, Sept., 1903) report the case of a boy of eleven years, who was brought to the hospital suffering from incoercible vomiting and tympanitis, accompanied by pain. Pulse was 110, temperature normal. Laparotomy was performed, and the seat of obstruction was found to be at the sigmoid flexure. An indurated mass was removed, but the child died of shock. The neoplasm was found to be a typical adeno-carcinoma. It is especially to be noted that the cancer developed insidiously, giving absolutely no premonitory symptoms except chronic dyspepsia, but causing a sudden occlusion of the intestines.

The Management of Children Predisposed to Phthisis.— Albert McConaghy (*International Med. Mag.*, Sept., 1903) advises the following systematic treatment in the case of children predisposed to phthisis. They are usually undersized, weak and somewhat anemic, take frequent colds and have a dislike to all kinds of exercise. (1) On arising take a glass of hot or cold water. (2) Breathing and other exercises in a well-aired room. Clothing loose, feet bare. Stand with the heels together, the toes turned out, the abdomen drawn in, the chest forward and upward, the arms hanging loosely. Have the hands on the posterior aspect of the thighs and slowly exhale all air from the lungs. As the arms are elevated to a position above the head, turn the palms up and the arms back, at the same time take in a full slow breath. The inspiratory act should be completed just as the hands come together over the head. In lowering the arms turn them backward and slowly exhale. At the end of the respiratory act bring the chest into a state of extreme contraction by crossing the arms in front and bending forward, at the same time making a forced expiration to get rid of the residual air. Keep the mouth tightly closed throughout the exercise. These movements, besides increasing the measurements and contour of chest, develop the muscles of respiration, increase the breathing capacity, elasticity and circulation of the lungs. They should be taken fifty times and should occasionally be interrupted by other movements which will develop the muscles of the shoulders and spine. (3) A regular time for stool immediately after the exercise. (4) Cold bath with a wash-cloth wrung out, and bathing each part at a time, drying it with vigorous rubbing in an upward direction. (5) Play in the sun an hour each day. (6) Encourage proper carriage of the body; chest upward and forward, abdomen drawn in, arms hangingly loosely. (7) Cultivate habit of deep breathing in the street and breathe through the nose. (8) Sleep on a hard mattress and without a pillow. (9) Limit the child's studies. In the matter of clothes, stocks, mufflers and furs should be forbidden. The body should be hardened by exposing it to the air daily, walking around the room unclothed and with the windows open. This treatment should be begun in summer.

The Mechanical versus the Operative Treatment of Rachitic Deformities of the Lower Extremities.—R. Tunstall Taylor (*Am. Jour. Orthroped. Surg.*, Aug., 1903) states that in 109 consecutive cases at the Hospital for Crippled and Deformed Children, the following deformities (genu valgum 42, genu varum 59, anterior bowing of the tibia 8) have been operated on with only two relapses and one over-correction. Braces were not used, but under ether the bones were straightened either manually or instrumentally, with fixation in plaster in slight over-correction from four to six weeks, while proper feeding, good hygiene and fixation on a Bradford frame were instituted until all symptoms of the so-called "acute rickets" were passed, as shown by absence of the usual manifestations, and the presence of improved nutri-

tion. The author's reasons are the following: (1) The avoidance of the expense of braces to the class of persons coming to the dispensaries. (2) Objections to operation on the part of parents are met *not* by suggesting "an operation to break the legs," but by a suggestion that we give the child a little gas and bend the legs straight, which is often done then and there. There is seldom a refusal, especially when the parents are told that the child's legs will have to be held straight in plaster of Paris for four to six weeks, and will require nothing to keep the deformity from returning. (3) With modern asepsis there need be no fear of operation, as osteotomy. Osteoclasis for genu varum is one of the simplest and most harmless procedures, even standing ahead of tenotomy of the tendo achilles for simplicity. Cases of genu valgum as well as genu varum have frequently been sent home the day of the operation. With plenty of padding under the cast, especially at the seat of fracture and between the toes, these patients have little or no discomfort except from the restraint offered by the plaster, and are cured by the time the braces, had they been ordered, would have come from the instrument-maker and have been properly adjusted to be worn in the daytime. The author says daytime, for with the usual forms of braces for the rachitic deformities of the lower extremities, we have the shoes as the lower attachment, and hence we have them taken off for ten hours at night, and for two hours at midday for the nap. (4) The comparison of the length of time the child has to submit to the discomfort of the plaster bandages versus the braces is wholly in favor of the operative method. The author describes a new osteoclast devised on the lever principle instead of the screw, the advantage of which is the rapidity of the fracture and release, which cannot be obtained with the other osteoclasts. It can readily be taken apart for carrying.

Nephritis of the Newborn and of Nursing Infants.—Enrico Mensi (*Riv. di Clin. Ped.*, Aug., 1903) draws the following conclusions from his observations: (1) Broncho-pneumonia is a frequent cause of nephritis in nursing infants. (2) The anatomico-pathological lesions especially affect the epithelium, above all of the cortical substance, rarely involving the vascular apparatus or the glomeruli. (3) The lesions are usually tubular, whether micro-organisms be found in the kidneys or not. (4) There is no exact or constant relation between the renal function and the clinical symptoms, especially those connected with disturbances of the circulatory and respiratory apparatus. (5) The explanation of this lack of correspondence between the renal function and the symptoms in nephritis is to be found in a urinary intoxication, or in the production of auto- and nephro- lysin and in individual susceptibility. (6) In some cases hereditary influence is evident while proof of involvement of the liver in the uremic symptoms is wanting. (7) The prognosis of the nephritis is dependent upon that of the causative disease. (8) Renadin is a valuable remedy in the case of infants.

Rheumatic Perichondritis of the Left Ear.—I. Valentine Levi (*Internat. Med. Mag.,* Sept., 1903) reports the case of a boy of ten years who gave a history of two attacks of acute articular rheumatism, one at five years and one at nine and a half. The latter began in both ankle joints, then involved the left knee, left hip, and finally the left ear. The parts all became enlarged, painful and inflamed, and have never since regained their normal size and form. The left ear shows little alteration in conformation, except disproportionate thickening, but its size is greatly increased when compared to the right ear; the largest vertical diameter is 7 cm. as compared to 5.5 cm. in the right; the greatest horizontal diameter is 5.5 cm. as compared to 4.5 cm. in the right; from the tip of the tragus to the periphery, on a horizontal line, the left measures 4 cm. and the right 3 cm. The peculiarity in this case consists in the involvement of the ear, which when one considers the time of its involvement, *i.e.*, during an attack of acute articular rheumatism, and when no other causes were active that could produce such a condition, it must be ascribed to the same (infectious?) agency that caused the other rheumatic symptoms.

ITEM.

THE WARREN TRIENNIAL PRIZE was founded by the late Dr. J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation, considered worthy of a premium, on some subject in Physiology, Surgery, or Pathological Anatomy; the arbitrators being the Physicians and Surgeons of the Massachusetts General Hospital.

The subject for competition for the year 1904 is on SOME SPECIAL SUBJECT IN PHYSIOLOGY, SURGERY, OR PATHOLOGY.

Dissertations must be legibly written, and must be suitably bound, so as to be easily handled. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one on the accompanying dissertation.

Any clew given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same.

The amount of the prize for the year 1904 will be $500.

In case no dissertation is considered sufficiently meritorious, no award will be made. Dissertations will be received until April 14th, 1904.

A high value will be placed on original work.

HERBERT B. HOWARD.

Resident Physician.

BOSTON, OCT. 30, 1903.

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